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The BULLETIN

American Society of Hospital Pharmacists

EMERGENCY TREATMENT *of poisoning*

HOSPITAL TRENDS AFFECTING *the drug market*

STERILIZATION *a new method*

U. S. MEDICAL CENTER *for federal prisoners*

MEETING PROBLEMS OF DESIGN *for pharmacy departments*

1953 INSTITUTES *A.H.A. and C.H.A.*

℞ VOLUME 10 NUMBER 4 JULY-AUG 1953

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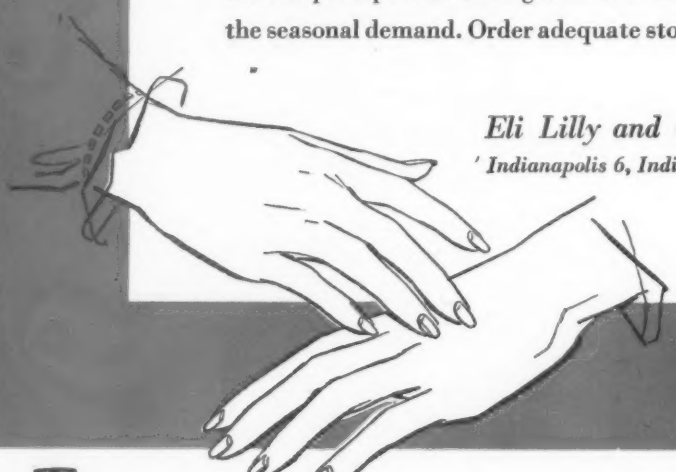

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Histadyl and Surfacaine

(THENYLPYRAMINE, LILLY) (CYCLOMETHYCAINE, LILLY)

The BULLETIN

American Society of Hospital Pharmacists

JULY-AUGUST 1953

VOLUME 10 NUMBER 4

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MEMBERSHIP in the American Society of Hospital Pharmacists and the American Pharmaceutical Association is open to all practicing Hospital Pharmacists. With membership is included subscriptions to THE BULLETIN of the American Society of Hospital Pharmacists and to the two *Journals* of the American Pharmaceutical Association, as well as the several services of both organizations.

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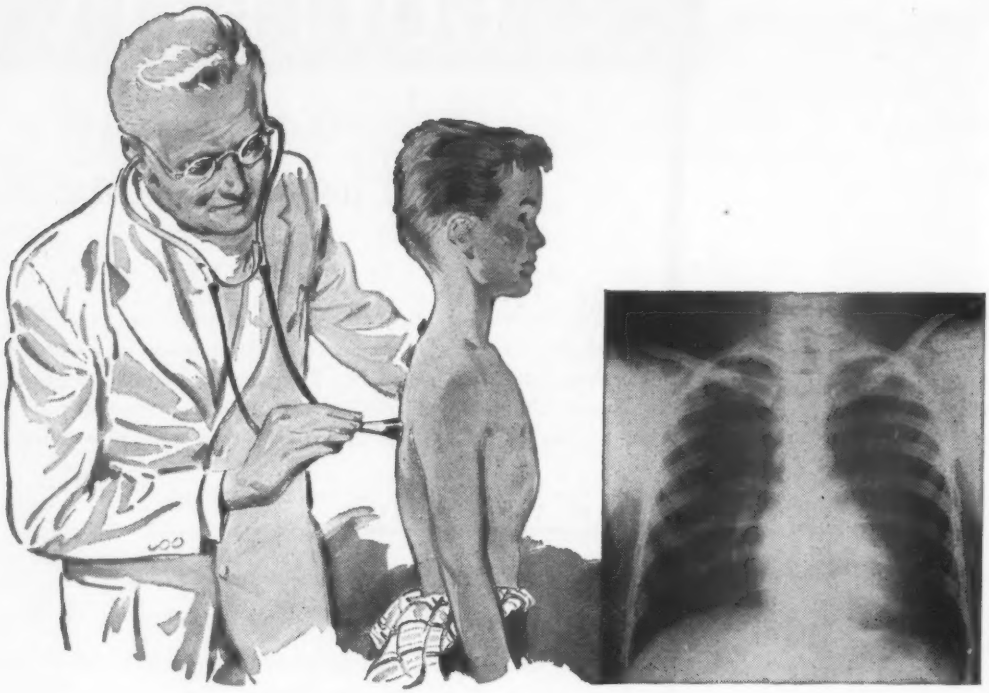

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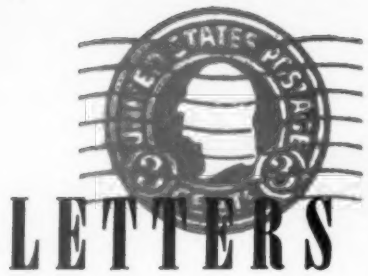

Interested in Exchange Program

DEAR SIRS: I have the honor to inquire regarding your exchange visitor program for pharmacists in your hospital. Please inform me also of whatever requisites are necessary for filing an application.

Thanking you and awaiting your reply on the address given at your earliest convenience, I remain.

ELENA N. TIOTUYCO, *pharmacist*
University of Santo Tomas Hospital
Pharmacy Department
Espana, Manila, Philippines

EDITOR'S NOTE: Since no formal exchange program for pharmacists is established in the United States, anyone interested may contact the inquirer directly. Similar requests have also been received from Miss Luciana S. Concepcion and Miss Corazon Coronel, both at the same address as given above.

Compliment

DEAR SIRS: Just a few words to comment on your International Number of THE BULLETIN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. This is an outstanding piece of journalism and you are to be highly complimented not only on the scope of the subject material but upon the fine handling and the treatment which you have given it. My hat is off to you!

GEORGE A. BENDER, *editor*
Modern Pharmacy
Parke, Davis and Company
Detroit 32, Mich.

Aluminum Sealers Available

DEAR SIRS: On page 152 of the March-April issue of THE BULLETIN appears a notice regarding an Aluminum Hand Sealer. The printed price for the 20 mm. sealer was $20.00; however we believe this is a misprint, as the price is $30.00.

We can supply not only the 20 mm. sealer, but also one for 9 mm. caps, 13 mm. caps and 30 mm. caps, with the corresponding stoppers and aluminum seals.

You may also be interested to note that in the near future we will market a small gadget to be attached to a 1 cc. insulin syringe, so as to regulate the amount of insulin to be taken. If a person is taking doses of 10 or 20 units, the gadget can be regulated to these or any other amount. This will be especially suitable for blind persons, or for anyone using the same amounts of insulin at all times.

NATIONAL SURGICAL SUPPLY COMPANY
458 Broadway
New York 13, N. Y.

EDITOR'S NOTE: The sealer referred to in the March-April issue of THE BULLETIN is the aluminum seal Fermpress available from The West Company, Phoenixville, Pa. On checking with the company, we find that the correct price is $30.00.

Successful Institute

DEAR SIRS: . . . I certainly enjoyed and profited from the Institute in Kansas City. The Sisters who planned it did a fine job. One thing that seemed to me to be most outstanding about the Institute was that so many of the officers of the national groups were present and participated in the different programs. . . . Thanks to all of you for helping to make our meetings so educational, professional and worthwhile.

SISTER M. THEODORA, *pharmacist*
St. Elizabeth Hospital
Danville, Ill.

Utah Society Affiliates

DEAR SIRS: Application is hereby tendered for affiliation of the Utah Society of Hospital Pharmacists as a chapter of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. . . . It is the desire of the Utah Society to work with the national organization in any and all ways possible to further the efforts to which the SOCIETY is subscribed. . . . We make this application with much pride and happiness at becoming associated with the national group.

GEORGE F. FLASHMAN, *president*
D. WALLACE THORUP, *secretary*
Utah Society of Hospital Pharmacists
Salt Lake City, Utah

a standard measure
to avert or allay
allergic distress...

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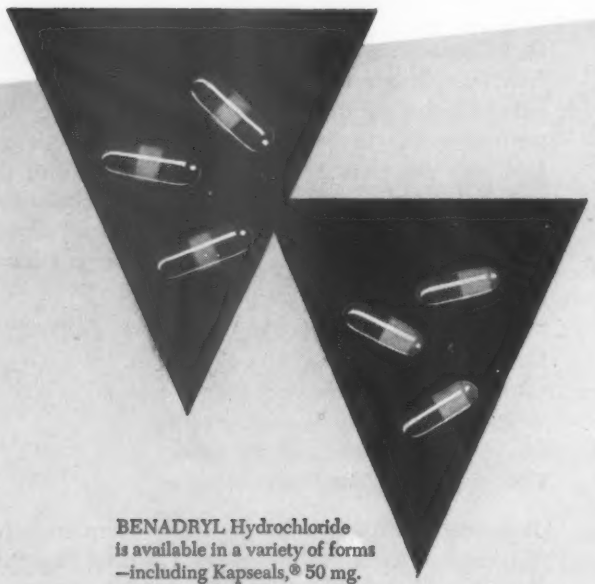

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Whenever antihistaminic therapy is needed to prevent or relieve allergic symptoms, prescription of BENADRYL Hydrochloride (diphenhydramine hydrochloride, Parke-Davis) has become a customary procedure in the daily practice of many physicians. Because relief is rapidly obtained and gratifyingly prolonged, many thousands of patients have been spared the usual discomforts of hay fever, vasomotor rhinitis, acute and chronic urticaria, angioneurotic edema, pruritic dermatoses, contact dermatitis, serum sickness, food allergy, and sensitization to penicillin and other drugs.

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EDITORIAL

Gamma Globulin Distribution

by DON E. FRANCKE

Evidence of the value of gamma globulin in the prophylaxis of paralytic poliomyelitis was first published late in 1952. This new use forecast an unprecedented demand for an already scarce drug, the supply of which is predicated upon collection of blood donated by the general public. Obviously, measures had to be taken to assure the best possible supply and the most equitable distribution of gamma globulin. This could be done only in relation to the nation's total need for blood, its derivatives, and related products. With more than a half million cases of poliomyelitis in the nation last year and the prediction that even a larger incidence might be reasonably expected in 1953, it became apparent that a system of allocation was a necessity if the health of the public were to be safeguarded. Thus the Health Resources Advisory Committee of the Office of Defense Mobilization was assigned the responsibility of coordinating the gamma globulin program along with those of blood and other blood derivatives.

More recently the Public Health Service has been assigned the responsibility of administering the allocation plan established by the Office of Defense Mobilization. The distribution pattern of gamma globulin continues to be through state and territorial health departments which in turn assume the responsibility for its allocation in county, city and other political subdivisions.

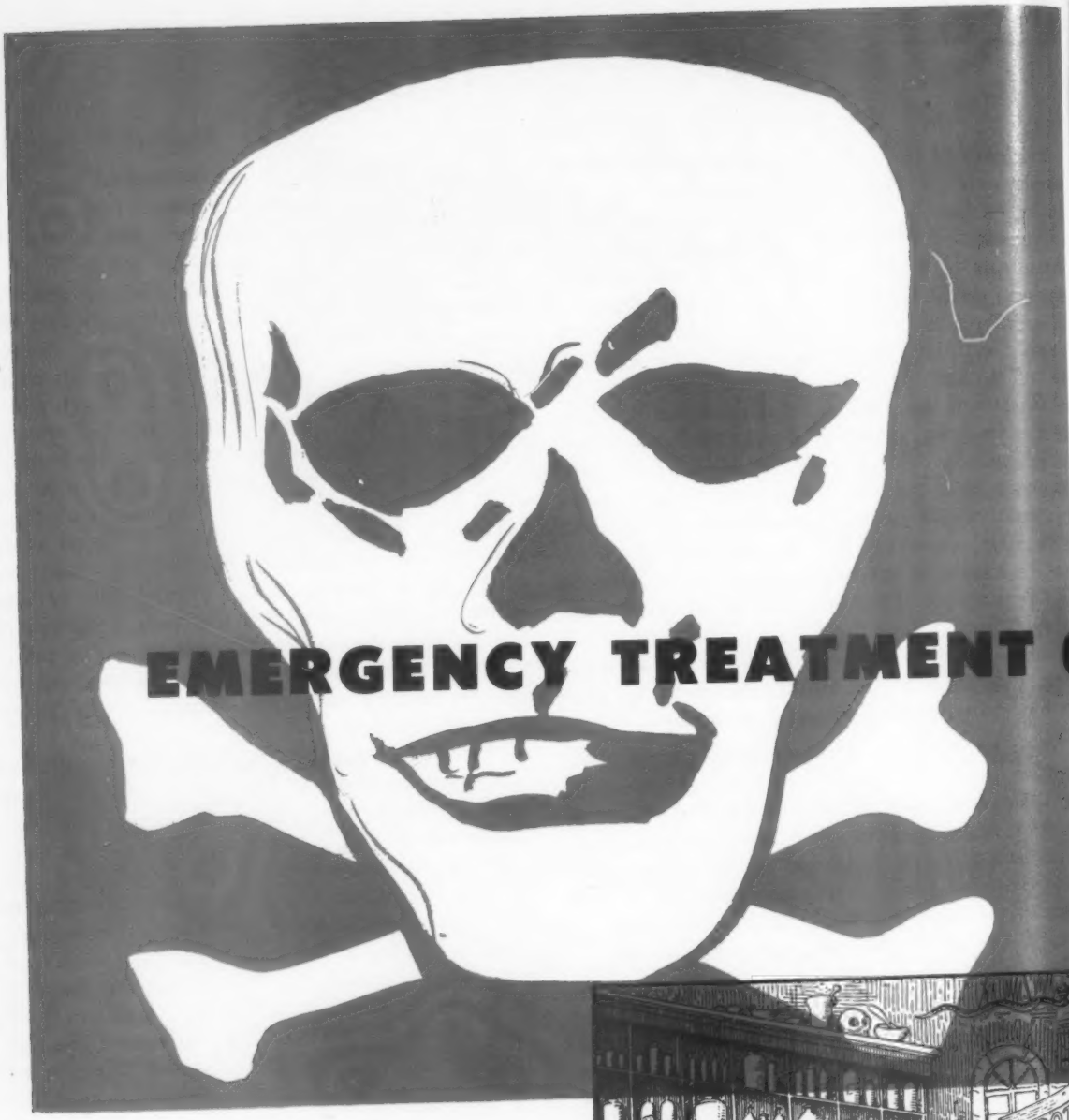
Pharmacists are playing an important role in the distribution of gamma globulin even though the pattern of distribution does not follow normal channels. In the Public Health Service, Pharmacists Thomas A. Foster and J. Solon Mordell are directly concerned with the allocation of this vital drug. Throughout the nation hospital pharmacies have been designated as depots in order to facilitate distribution of gamma globulin. In addition, in those numerous counties which do not have a full time health department, hospitals handle the complete distribution of this drug.

The hospital pharmacist works directly with the medical staff and with the local health department and performs a real service in assisting in the coordination of the difficult problems of supply and demand. Through the hospital, service is maintained on a 24 hours a day, seven days a week basis. Since hospitals have become the focal point for community health services it is only natural that they should also serve as depots for the distribution of gamma globulin.

In times of acute shortage of a life saving drug it is incumbent upon all components of the medical care team to become acquainted with the problems at hand and to lend active cooperation in solving them. Those responsible for devising a method for the distribution of gamma globulin were not faced with a single problem. In fact the production, distribution, and utilization of gamma globulin can be considered only in relationship to the total program for blood and its derivatives. Priority must be given to the Armed Forces in supplying whole blood, blood plasma, and serum albumin. Next, civilian needs for these products must be met. Only after these requirements have been filled can the probable supply of blood available for gamma globulin be estimated. And this prediction is subject to the uncertainties of war as well as of peace. Then too, only a portion of gamma globulin can be allocated for use in poliomyelitis. Adequate supplies must be reserved for use in measles, infectious hepatitis, and hypogammaglobinemia.

One of the special problems in the distribution of gamma globulin is inherent in the fact that poliomyelitis is a contagious disease which may rapidly rise to epidemic proportions in many communities simultaneously. If the disease is unchecked, the death rate is high. But in order to arrest an epidemic which threatens a large community, mass inoculations of tens of thousands of people are necessary. For example, in but two outbreaks, in Birmingham, Alabama and Elmira, New York, approximately 500 liters of gamma globulin were given to about 65,000 children. Since it requires two months to process gamma globulin (the fractionation process alone requires three weeks), it is obvious that considerable long range planning must be done. Large quantities must be put in reserve for immediate use whenever an epidemic threatens. For this reason approximately 57 percent of the total supply of gamma globulin for use in poliomyelitis was reserved for distribution to state and territorial health departments. In addition, approximately 33 percent of the supply had to be retained for mass community prophylaxis. And an additional 10 percent was allocated for emergency distribution and investigation.

Thus the problems of allocation and distribution are not easy ones to solve. The principal important consideration is that gamma globulin be available to those whose health and life are threatened. In the distribution of gamma globulin, hospital pharmacists have an added opportunity for greater public service.



The Symbol of Death enters the Apothecary Shop

POISONING

by CHARLES H. HINE

APPROXIMATELY TEN THOUSAND LIVES are lost annually from the toxic effect of chemical substances. About two thirds of these deaths follow the accidental or intentional ingestion of drugs and household chemicals. Statistics pertaining to the number of successfully treated cases of acute poisoning are difficult to ascertain, but I estimate that approximately forty to fifty thousand such cases occur annually. The hospital pharmacist, by the peculiarities of his training and position, is especially suited to aid in increasing the number of cases which end favorably.

It is distressing but unavoidable that the problem presented by the absorption of toxic materials increases yearly, as the ubiquity and growing numbers of new chemical agents in therapeutics, agriculture, industry, and the home, increase the number of persons exposed. While the number of chemical agents increases, fortunately their ability to adversely affect the body's physiology is limited, so that the problem of treatment does not become impossible. That is to say, while new agents may become more toxic, their ability to cause derangement in the body's physiology is limited by the extent of the body's systems to respond.

My purpose in talking to you this afternoon is to present a rational basis for the emergency treatment of poisoning which may be followed by the hospital pharmacist, and to discuss the toxicology of twenty common poisons. Before proceeding further we should remember that toxicity is relative. All substances are toxic in some concentration and, conversely, there is no agent so toxic that in some dilution it manages to retain its toxic properties. Reference to illustration one will indicate a classification of poisons according to the amount required to produce death in animals, and the approximate lethal dose in man.

Commonly Used Term	LD_{50} (wt per Kg.)	Probable Lethal Dose for Man
Extremely toxic	1 mg. or less	1 minim
Highly toxic	1 to 50 mg.	1 teaspoonful
Moderately toxic	50 to 500 mg.	1 ounce
Slightly toxic	0.5 to 5 Gm.	1 pint
Practically non-toxic	5 to 15 Gm.	1 quart
Relatively harmless	15 Gm. or more	1 quart or more

CHARLES H. HINE, M.D., Ph.D. is Associate Clinical Professor, Department of Pharmacology and Experimental Therapeutics of the School of Medicine and the School of Public Health, University of California Medical Center, San Francisco.

Presented at the Ninth Institute on Hospital Pharmacy, Loyola University, Los Angeles, Calif., June 15-19, 1953.

General Principles

The treatment of acute poisoning is divided into two general procedures. First, emergency methods which can be applied immediately and which do not require the presence of a physician, and secondly, specific therapeutic measures which may be delayed and which are under medical control.

Emergency methods. Emergency methods consist of preventing further absorption of the toxic agent and rendering physiological support to the poisoned individual. Emergency support is based

EMERGENCY METHODS

Support
- First Aid

Prevent Absorption
- Lavage
- Emesis
- Adsorption
- Chemical Precipitation

on control of the affected person so that he does not injure himself and on re-establishing normal blood pressure, heart rate, respiratory rate, and body temperature by simple first aid procedures.

In the emergency prevention of absorption, one attempts to prevent the further absorption of materials which may be on the skin or in the gastrointestinal tract by lavage, or, in the latter case, by emesis; by adsorption of the material on a neutral agent; or by chemical precipitation. Lavage is the most important method of removal of poison from the stomach. It is indicated whenever there is a question as to the presence of the material in the stomach, but is usually not effective after six hours. It is best performed by passing a stomach tube of moderately stiff rubber with a smooth blunt end. For adults, a number 30, and for children a number 20 French tube is suitable. It should be remembered that serious injury may result from improper use of the stomach tube, and the procedure should be carried out by an experienced person, preferably, but not necessarily, a physician. The "universal antidote" should be administered prior to passing the tube, and the contents of the stomach siphoned or drawn off by means of a large syringe as quickly as possible. The stomach tube should never be used after poisoning by corrosive and caustic materials, since perforation of the esophagus or stomach may occur.

If the patient is vomiting, it is not necessary to pass a stomach tube or to give an emetic, but the administration of a large amount of diluent, such as warm water, is encouraged. If the stomach tube is not available, and the patient is not vomiting, emesis should be produced. Suitable agents are: a half-ounce of table salt in a glass of warm water; a tablespoon of powdered mustard in warm water; a half glass of soapsuds; or manual manipulation of the base of the tongue.

Adsorption can be accomplished by administration of the "universal antidote," one-half ounce of a mixture of two parts charcoal, one part magnesium oxide and one part tannic acid. This may be repeated as necessary; attempts to adsorb the poisoning are made following vomiting and gastric lavage.

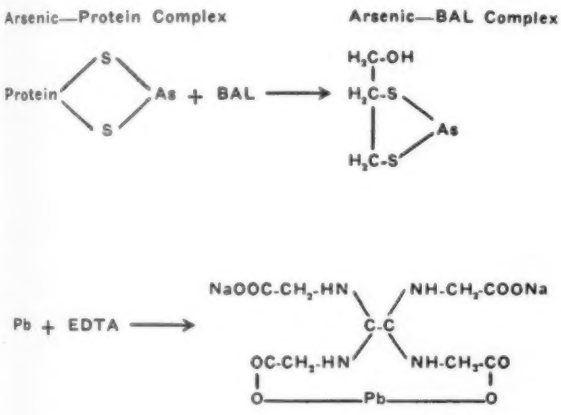
Chemical inactivation may be accomplished by oxidation of the material with potassium permanganate solution, 1:1000 for adults and 1:2000 for children, or by administration of a specific precipitant. It should be emphasized that the stomach is not a suitable chemical vessel and that any chemical reaction must be of a very mild sort. Once the poison has been absorbed into the body, much less can be done with any treatment, so remember that timely action in an emergency is of the greatest value. When the emergency treatment has been completed, the treatment of acute poisoning is a problem of therapeutics and is, of course, the province of the physician. The hospital pharmacist can render supportive service in these cases by providing the physician with authentic information relative to the qualitative and quantitative composition of the material in question, its probable mechanism of action, and the pharmaceutical basis for counteracting its effects. He should also have available the equipment and supplies necessary for use in emergency treatment. A satisfactory list of these is contained in the "Official Antidotes" of the California State Board of Pharmacy. Included are such items as proper sized stomach tubes, lavage solution, nasal tubes, oxygen inhalation apparatus, suitable hypodermic solutions and tablets, intravenous infusion apparatus, and liquids, and miscellaneous drugs and chemicals. Treatment at this stage consists of (1) physiological antagonism; (2) inactivation of the absorbed material; and (3) physiological support.

SPECIFIC THERAPEUTIC MEASURES

- Physiological antagonism
- Inactivation
- Physiological support

Physiological antagonism is based upon an attempt to produce an opposite effect in the body to that invoked by the toxic agent. For example, if depression of the central nervous system is present, the moderate use of analeptics is indicated. In cases of respiratory depression, increased oxygen exchange is warranted. When there is cardiac depression and normal slowing of the heart, attempts to return the heart to its normal rate and rhythm should be undertaken.

Inactivation is a procedure through which the toxic agent is removed from the internal environment of the body by complexing or binding it by a chemical substance whose binding power is greater than that of the tissues. Examples of such a mechanism is that of the action of BAL in arsenic poisoning, and of EDTA (ethylenediamine tetraäcetic acid, tetrasodium salt) in the treatment of lead intoxication.



Physiological support consists of the maintenance of satisfactory internal environment through the administration of oxygen, parenterally administered fluid and nutrient substances, and blood-pressure-supporting agents.

Having now reviewed the general principles which pertain to counteracting the effects of poisons and the pharmacist's role in the procedure, I should like to discuss briefly the toxicology of twenty of the most common causes of poisoning which require emergency treatment at hospitals.

Common Causes of Poisoning

Acids and corrosives. The specific action of these agents is derangement of tissues due to their necrotic and caustic effects. If contact is

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external, the areas should be flooded with water, and after at least ten minutes of washing, a one percent solution of sodium bicarbonate, freshly prepared, should be applied in the form of a dressing. When the material is taken internally, a demulcent such as milk of magnesia or aluminum hydroxide gel should be administered.

Alcohols. The mechanism of action of these materials is, with the exception of methyl alcohol, depression of the central nervous system. Death ensues, as in the case of other hypnotics, when the respiratory center is depressed to the point where adequate oxidation cannot be maintained Emergency treatment consists of the establishment of a patent airway and the moderate use of analeptic agents such as amphetamine and Metrazol.

Arsenic. The arsenical compounds inhibit the sulfur-containing enzymes of the body and produce inflammatory responses. These effects can be reversed by the administration of British antilewisite (BAL), a dithio compound capable of mobilizing and removing the arsenic.

Barbiturates. The toxic effects of these agents are similar to those of alcohol: depression of the central nervous system with a failure of respiration, circulation, and cardiac competency. The method of choice for treatment in my opinion is maintenance of proper supportive treatment and the judicious use of analeptics.

Carbon tetrachloride. While capable of producing narcosis, this agent is more commonly responsible for deaths because of degenerative effects on the liver and kidneys. Th administration of calcium salts and the amino acids methionine and cystine is indicated. The treatment of lower nephron nephrosis according to the therapeutic method of choice is indicated.

Carbon monoxide. This gas inactivates hemoglobin and prevents normal transfer of oxygen. Treatment consists of removal from contaminated places, administration of artificial respiration if necessary, and the application of oxygen or carbogen.

Emergency Treatment
Suggested Equipment and Supplies

Stomach Tube, Size No. 30, rubber, with attached funnel	1
Stomach Tube, Size No. 20, rubber, with attached funnel	1
Lavage Solutions:	
Potassium Permanganate, 1:1000	1 liter
Sodium Bicarbonate, 5%, freshly prepared	1 liter
Limewater (saturated solution)	1 liter
Nasal Tube, rubber, with attached funnel	1
Sterile Gauze, 5-yard roll	1
Oxygen Inhalation Apparatus — mask, tubing, bag	1
Cylinder of Oxygen	1
Cylinder of 5% Carbon Dioxide in Oxygen	1
Hypodermic Syringes, 2, 5, 20, and 50 cc. with needles of appropriate sizes.	2 each

Hypodermic Solutions and Tablets:

Apomorphine Hydrochloride (5 mg. tablets)	20
Atropine Sulfate (0.5 mg. tablets)	20
Caffeine Sodium Benzoate (2 cc. 0.5 Gm. ampuls)	12
Calcium Gluconate (10 cc., 10% ampuls)	6
Dextrose (50 cc., 50% ampuls)	6
Distilled Water (10 cc. ampuls)	12
Ephedrine Hydrochloride (0.016 Gm. tablets)	6
Epinephrine Hydrochloride (1 cc., 1:1000 ampuls)	12
Methylene Blue (50 cc., 1% in 1.8% sodium sulfate)	2
Morphine Sulfate (1 cc., 0.016 Gm. ampuls)	6
Pentobarbital Sodium (5 cc., 0.25 Gm. ampuls)	6
Picrotoxin (20 cc. bottles, 0.3%)	2
Phenobarbital Sodium in Propylene Glycol (2 cc., 0.32 Gm. ampuls)	2
Physostigmine Salicylate (0.6 mg. tablets)	6
Sodium Bicarbonate (20 cc., 1.5 Gm. ampuls)	6
Sodium Nitrate (10 cc., 3% ampuls)	2
Sodium Thiosulfate (50 cc., 25% ampuls)	2

Intravenous Infusion Apparatus:

Dextrose (5% in Normal Saline) infusion bottle	1 liter
Normal saline solution	2 liters
Plasma, Dry	2 units
Ringer's Solution, U.S.P.	1 liter
Sodium *r*-Lactate (1.87% or M/6) infusion bottle	1 liter

Miscellaneous Drugs and Chemicals

Alcohol, Ethyl (95%)	500 cc.
Aluminum Hydroxide Gel	250 cc.
Amyl Nitrite (0.3 cc. pearls)	12
Aromatic Spirit of Ammonia, 30 cc. bottles	3
Dimercaprol (BAL), (2:3-Dimercaptopropanol), (Ampuls, 10% in oil)	6
Calcium Lactate	30 Gm.
Charcoal, Activated	125 Gm.
Copper Sulfate, 0.3 Gm. capsules	12
Ether, for anesthesia (125 Gm. containers)	4
Glycerin	500 cc.
Liquid Petrolatum	500 cc.
Limewater	500 cc.
Magnesium Sulfate (Epsom Salt)	500 Gm.
Magnesium Oxide	125 Gm.
Methylene Blue, 0.065 Gm. tablets	100
Milk of Magnesia	250 cc.
Mustard, powdered	125 Gm.
Olive or Salad Oil	500 cc.
Pentobarbital Sodium, (0.1 Gm. capsules)	24
Propylene Glycol	250 cc.
Sodium Bicarbonate (Baking Soda)	500 Gm.
Sodium Chloride (Salt)	500 Gm.
Sodium Citrate	125 Gm.
Sodium Nitrite, powdered	30 Gm.
Sodium Phosphate, dibasic	125 Gm.
Sodium Thiosulfate	125 Gm.
Starch	125 Gm.
Tannic Acid	125 Gm.
Vinegar (Diluted Acetic Acid, 6%)	500 cc.

"Universal Antidote":

(Activated Charcoal, 2 parts; Magnesium Oxide, 1 part; Tannic Acid, 1 part) 15 Gm. (½ ounce)	12

FROM: *Pharmacy Laws of California*, January 1, 1952, page 44.

Cyanides. Cyanides exert their toxic effect by inactivation of enzymes required to transfer oxygen at the cellular level. Their toxic effect may be reversed by the production of methemoglobin and conversion to thiocyanate.

Food poisoning. Most food poisonings are caused by the staphylococci or streptococci producing enterotoxins, and the toxin is frequently removed by vomiting or colonic passage. Administration of the "universal antidote" and maintenance of adequate supplies of fluid is helpful.

Halogenated insecticides. A large number of derivatives of aromatic hydrocarbons are used as insecticides. Among the more common are DDT, BHC, aldrin, dieldrin, chlordane. The chief toxic effects are on the central nervous system, where stimulation is the usual effect. This can be combatted by depressants such as pentobarbital intramuscularly. Secondary effects on the visceral organs are combatted in a manner similar to carbon tetrachloride.

Methane. The toxic action of this gas is as an asphyxiant displacing oxygen from the inspired air. The treatment consists of removing the patient from the contaminated area and administration of artificial respiration is needed.

Mercury. Mercury, like arsenic, combines with proteins in the body, inactivating many enzyme systems. Mercury poisoning can be counteracted by BAL, but greater amounts for longer periods are usually necessary for satisfactory results.

Morphine. The actions of morphine are well known to all of you. Recently, considerable success has been obtained by the use of n-allyl morphine.

Mushroom poisoning. Poisoning by mushrooms varies according to the species encountered. The phalloides type causes visceral degeneration, and specific antidotal procedures are not available. The muscarine type stimulates parasympathetic nerve endings; its action can be reversed by administration of atropine.

Nicotine. Nicotine is a stimulant of the central nervous system and a paralyzing agent for ganglia. Toxic effects are usually due to paralysis of respiration. Since nicotine is rapidly detoxified in the body, artificial respiration is the method of choice.

Organic phosphorous compounds. A number of new insecticides such as parathion, TEPP, EPM, have become available and present a new problem because of their high degree of toxicity. These agents irreversibly inactivate the enzyme cholinesterase, producting a syndrome characterized by stimulation of all structures activated by acetylcholine. Death may be due to stimulation of the central nervous system, pulmonary edema, or peripheral collapse. The antidotes of choice are atropine, to counteract the muscarinic effects, and magnesium sulfate to counteract the nicotinic effects of acetylcholine.

Phenols. Phenolic agents are stimulants to the central nervous system and also cause degenerative lesions of the kidneys. They are combatted by control of the central nervous system stimulation with depressants and treating of kidney disease by accepted methods.

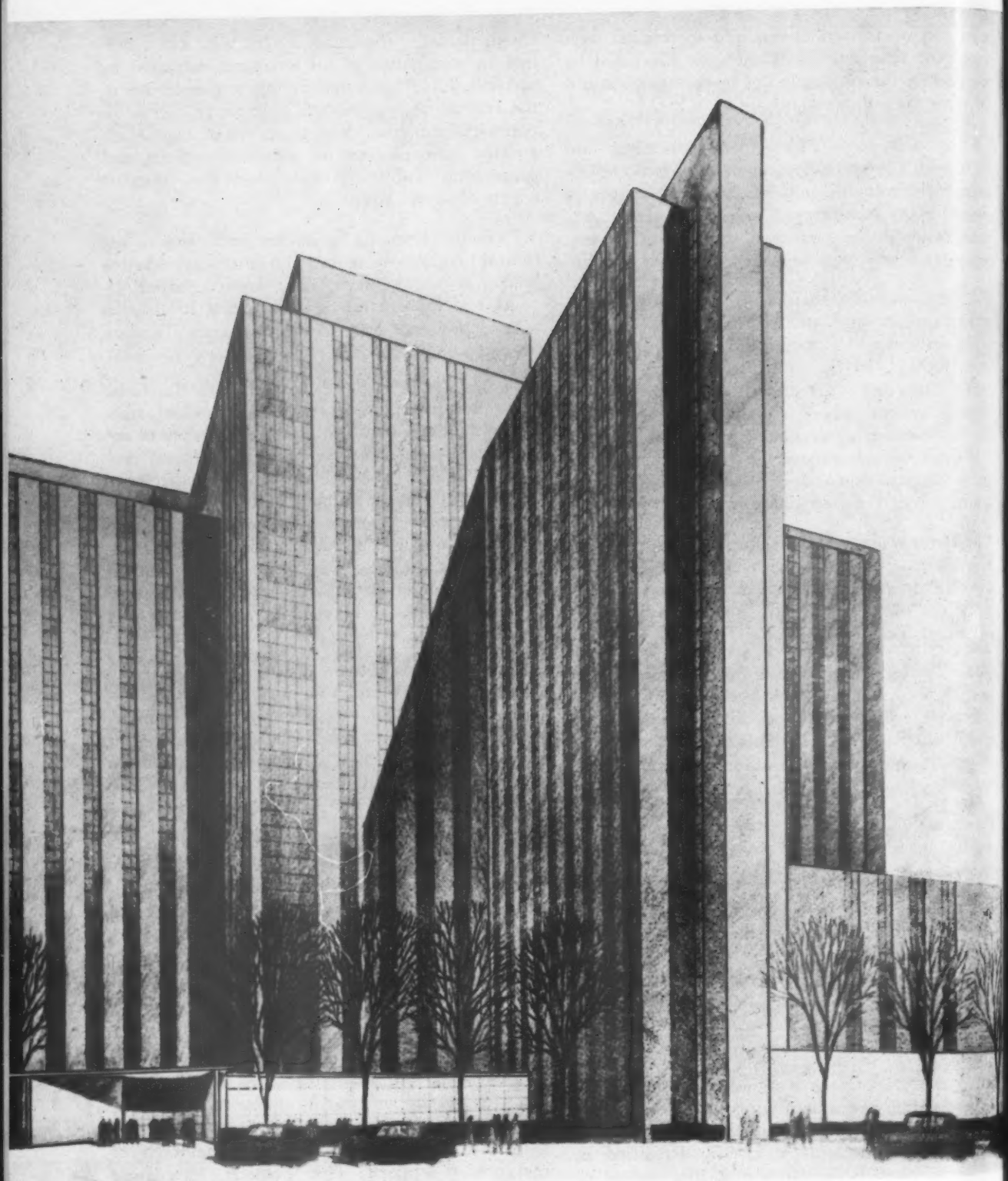
Phosphides. Phosphides, like phosphorus, cause acute inflammation of the gastrointestinal tract and in the liver; they also produce hemolysis of red blood cells. There are no specific antidotal procedures against phosphides, though gastrointestinal effects may be combatted by administration of demulcents. Attempts should be made at protection of the liver by administration of a high-protein diet, limiting fat intake; and hemolysis may be counteracted by the administration of alkaline solutions to prevent kidney blockage and by whole blood transfusions.

Salicylates. Salicylates cause central nervous system stimulation and a derangement of the acid-base balance. The excitement can be counteracted by depressants; the CO_2 combining power should be followed, and alkalizing agents, sodium bicarbonate and sodium lactate, administered as required.

Snake bite. The usual snakes encountered in California produce central nervous system stimulatory and blood-vascular effects. Specific antitoxins are available for all domestic snakes found in this area.

Summary

In summary, I would like to point out that the treatment of acute poisoning is an ever increasingly complex subject, due to the great number of new chemical agents with which we have contact. Emergency treatment of these states is of extreme importance, and frequently, is more helpful than later, more intensive methods of therapeutic support. The hospital pharmacist plays an important role in the treatment of acute poisonings by his knowledge of proper emergency methods of treatment and by supplying the physician with information pertaining to the mechanism of action of the toxic agent and furnishing him with appropriate antidotal compounds.



Sketch of new
VA Research Hospital
Chicago, Illinois

HOSPITAL TRENDS

affecting pharmaceutical marketing

by ROBERT M. CUNNINGHAM, JR.

I AM SURE YOU WILL AGREE with me that every selling task becomes easier and more successful as the salesman's knowledge and understanding of the person or organization he is selling increases. Thus it should pay us here, in an examination of the hospital market for pharmaceutical products, to spend some time observing what is happening to and in the hospital today, and, more particularly, what is happening in the hospital pharmacy. Since the hospital is both a medical and a business organism, we shall have to study both aspects of its existence. In both aspects, important changes are taking place.

Changes In Hospitals

Probably the most important change that is occurring in hospitals, from the standpoint of medical practice, is the constantly increasing proportion of non-surgical patients. Today's hospital is for the walking as well as the prostrate sick. Instead of being an operating room with attachments, the hospital is now a diagnostic and treatment center embracing the whole broad range of medicine's problems.

This growth or aggrandizement of the hospital has not come about especially because anyone wanted it to happen. In fact, many physicians in private practice consider the growing importance of the hospital a menace to their professional freedom and are viewing this development with alarm, while hospital people themselves are by no means uniformly enthusiastic about the increasing size and complexity of their organizations. The expansion of hospital functions and facilities in our time is rather the inevitable response to the demands of advancing medical technology. This would appear to be an irreversible procedure; much as we might like them to, our doctors cannot give us complete modern medical care at home or in their offices. You can't carry a betatron in a little black bag.

From your standpoint, I should say, the most important of these expansionist trends in hospital development is the growth of ambulatory care and outpatient service, which are tremendously increasing the volume of drugs dispensed in and by the hospital. To be persuaded that today's hospital is no longer exclusively concerned with care of the bedridden sick, you need only talk to an administrator who is planning a new building. The pro-

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portion of space for diagnostic facilities to beds has changed dramatically in the last few years. In addition, the newer hospitals are being built with day rooms, sitting rooms, patients' dining rooms and other accommodations for ambulatory patients that were undreamed of only ten years ago.

Not long ago, for example, I talked to the administrator of one of the large teaching hospitals here in Chicago. The Board of Trustees of the hospital, he told me, had just laid aside its long cherished dream for building an addition that would have added another hundred or 150 beds to the hospital's capacity. "We decided that it simply didn't make sense to keep on piling up nursing units designed to provide the kind of care we are already giving," the administrator explained. "Instead, we've employed a consulting firm which is conducting studies in an effort to determine as far as possible what kind of facilities we should build now for the services we'll be called on to provide over the life of the building. We aren't by any means certain as yet, of course, but it looks now as though the growing problem of chronic disease will demand an altogether different kind of nursing unit from those we have now."

This kind of change isn't by any means limited to the large teaching hospital in our metropolitan centers. An 85-bed hospital in a town of about 25,000 people not far from here recently spent several hundred thousand dollars on an addition designed primarily for the provision of low intensity nursing care for chronic patients, and another new hospital that I visited recently in the East, also in a small town, has anticipated the trend of medical events by providing outpatient diagnostic facilities, doctors' offices and consulting rooms, and public health facilities, making it a miniature medical center of a kind that has long been talked about. This is happening all over.

Changes In Medical Staff Organization

As these changes take place in the nature of hospital service and the shape of hospital facilities, parallel changes are occurring in the pattern and power of the medical staff organization. More and more, the individual physician's practice in hospitals is guided and governed by staff regulations. Here again, this happens not so much because anybody wants it to happen as because the onward march of medical science makes it necessary. The organization of the hospital staff by specific departments, the restriction of the individual physician's privileges to known competencies, mandatory supervision and consultation, the evaluation of professional results in clinical pathological conferences and by tissue committees and "medical audit" agencies—these and other features of modern hospital practice make the individual physician increasingly dependent on group judgement —that is, on the hospital staff organization.

I'd like to emphasize here again that in reporting these things to you I don't by any means intend to imply that I think they are necessarily good. As a matter of fact, it doesn't make much difference for our purposes whether they are good or bad. Like new developments in business, and in other aspects of our society, new things in medicine usually have both good and bad implications. The point here is that they are inevitable.

As the doctor is compelled by advancing technology constantly to embrace new knowledge, new techniques and new materials, he must necessarily relinquish some of the things he has done in the past. This is responsible for some of the changes that are taking place in hospital nursing service. We used to think of the nurse as the doctor's assistant; today she is actually an assistant doctor, carrying out procedures that have heretofore been considered as the exclusive responsibility of the doctor of medicine. A few weeks ago I took part in a nursing workshop conducted by the Illinois Hospital Association and the University of Illinois, and I was astonished to learn—in specific detail and directly from the women who are responsible for nursing service in our Illinois hospitals—the extent to which this shift of responsibility from doctor to nurse has already developed. The nurse, in turn, has passed along some of her responsibilities to the sub nurse—that is, the practical nurse, nurse's aid and orderly. To complete the chain of events, the patient is doing for himself a lot of the things that used to be done for him by all these people.

Business Changes

Fortunately, as all these changes have been taking place in the nature of the hospital as a medical institution, it has been changing too—and in this case I think we can safely generalize and say it has been improving—as a business institution. Methods and procedures in the admission and discharge of patients, the separation and collection of accounts, purchasing, inventories, stores, accounting and every other phase of business operation are improving constantly. If these methods are still something short of the standards we should like to see, and those that we require in the operation of our own businesses, it must be remembered that the development of the voluntary hospital as a business is still comparatively recent. The hospital for hundreds of years in our western culture was exclusively a charitable and religious institution. Its services were offered free to the sick poor, and performed by devoted religious workers who received no pay for their pains. It was only a couple of hundred years ago that

patients began to pay for the services they received, and it was still more recently that hospital people began to understand that they would have to pay salaries and wages comparable to those paid in other industries. Those of you who do business directly with hospitals can of course still see many vestiges of the old concept that charity and cost accounting couldn't dwell together amicably under the same roof, but I think you will agree with me that this kind of thinking is vanishing rapidly from our hospitals today.

The thing that is driving it out is the pressure of economic circumstance. The day when the hospital was primarily a charitable institution has passed, and the day when it has been a business whose service is bought and paid for by the individual customer or patient is rapidly passing. The biggest single change in the business practice of the modern hospital is the development of the so called "third party payment"—that is, the constantly increasing proportion of private patients whose service is paid for by someone other than himself, either a Blue Cross plan, an insurance company, an employing corporation, a union or some other contracting agency. The group or agency which contracts to purchase hospital care for a large number of members or policy holders is a more exacting buyer than the individual was. These groups want prices to reflect costs, and they are increasingly in a position to make their demands effective.

To direct these increasingly complex tasks requires an increasingly knowledgeable and skillful management. The old type of administrator is vanishing from the modern hospital. The nurse who took over because there was no one better prepared at hand, the doctor who failed in practice or retired because of ill health, the minister who was given a church owned hospital to run instead of a parish, the trustee who manages the hospital as a side line to his own business—these are vanishing types today. In their place we see emerging the trained administrator, educated for the specific responsibilities of hospital management. He may be a physician who has deliberately selected administration as a career, or a business man with an interest in the hospital's humanitarian purpose, or a nurse with an especial talent for dealing with people; in any event the administrator today is more likely to be selected by design than by chance. As you know, there are now 14 American universities providing undergraduate or graduate courses of training in hospital administration. The impact of these programs and their graduates on the character and quality of hospital administration in coming years is certain to make itself felt—unquestionably in continually improving management methods.

The New Hospital Pharmacy

One of the things that management must do today is make certain that hospital revenues are equal to—or not far behind—hospital expenditures. This demands closer and closer attention to the hospital's revenue producing departments, and one of these is the hospital pharmacy. If you have been visiting the new hospitals or looking at some of the hospital plans we published in our journals, you will have seen that the old fashioned drug room tucked away in a dark corner of the basement is a thing of the past. The new hospital pharmacy is spacious and attractive, conveniently located on the ground floor, where it is easily accessible to the growing number of outpatients who visit the hospital's diagnostic departments. The pharmacist himself has a new look. A few years ago, he was likely to be a sad sack who had failed in the retail business and drifted into the hospital as a last refuge. A few of these pharmacists are still around in our hospitals, of course, but, like the inadequate administrators, they are a vanishing type. In the modern hospital, the pharmacist must be a superior type; he is a consultant to the medical staff in the selection and administration of drugs, and an assistant to the administrator in the management of an important revenue producing department of the hospital. Already the pharmacy colleges are offering special courses of instruction in hospital pharmacy operation. Students in some of the colleges are rotated through affiliated hospitals; at other colleges formal courses in hospital pharmacy are planned. The professional training of the pharmacist himself, as you are of course aware, is likely to be extended soon to five years. Just a couple of weeks ago I heard the dean of one important college of pharmacy declare that the only thing that has prevented pharmacy from becoming a five year course already is the present selective service system.

In addition to being a specially trained professional man, the hospital pharmacist today is high in the counsels of management. At a recent hospital meeting the administrator of one of the nation's great hospitals—Los Angeles County—described an administrative method in which the heads of the most important divisions confer as a committee on all major management decisions. The hospital's chief pharmacist is a member of this management group—contributing to decisions having to do with all phases of hospital operations.

The Formulary System

Since he must look both ways, considering revenue and expense as well as the whims and conveniences of individual members of the medical

staff, the manager of the hospital pharmacy today is interested in the economies that can be achieved through better buying and inventory practice. Hence the development of the standard hospital formulary, and the formulary committee.

I am aware of course, as you are, that formulary practice today is a controversial subject. Some physicians, and some administrators, and some pharmacists, and some manufacturers regard the standardizing effect of the formulary program as a form of regimentation which limits the freedom of the individual physician. In at least one instance, the development of the hospital formulary has been described as a "vicious, socialistic movement."

I think this view is absurd, and it could only result from a complete misapplication of the formulary idea in a particular hospital, or a complete misunderstanding of what the formulary program is intended to achieve, or both. In support of this view, let me quote a source familiar to all of you, Don E. Francke, chief pharmacist of the University Hospital at Ann Arbor, Michigan, and editor of THE BULLETIN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. "The formulary system is one aspect of medical self-government which was formalized in 1936 when the American College of Surgeons adopted the first *Minimum Standard for Hospital Pharmacies,*" Mr. Francke said in a recent BULLETIN editorial. "Organizationally, the Pharmacy and Therapeutics Committee of the staff, which is responsible for the formulary, is a subcommittee of the medical staff, and its recommendations are subject to approval by the staff as a whole. It is not, as some imply, a dictatorial device sponsored by a minority group. On final approval the formulary forms the basis of one policy of hospital operation. One of the objectives of this policy approved by the medical staff, is to meet the problem of product duplication as far as possible. This is done not only in the interest of rational therapy, but also to foster sound teaching practices, as well as economy. We do not believe that it works to the detriment of the patient, the physician, the reputable pharmaceutical houses or to pharmacy as a profession."

As many of you may know, the United States Public Health Service, which operates a nationwide system of hospitals and clinics, has recently published a formulary or list of basic drugs—the first time this has been done by this particular agency. In the introduction to this public health service formulary, its authors have stated the reasons for having a special list of basic drugs as follows:

1. To provide the patient with the best possible drug therapy.

2. To provide the physician and dentist with carefully selected agents of proved effectiveness, which will be a basis for flexible drug therapy.

3. To provide a standard of comparison for the evaluation of new therapeutic agents.

4. To provide the physician, dentist, pharmacist and nurse with a ready reference on the essential pharmacology for the basic drugs.

5. To provide for simplification of all drug therapy and record keeping.

"In the selection of these basic drugs," the introduction continues, "an attempt has been made to sort out the smallest number of the best, simplest and safest medicines currently needed in the ordinary prevention, diagnosis and treatment of illness . . . The critera utilized in the selection of drugs were:

1. The primary consideration is the therapeutic efficacy of the drug. Within this criterion, preference is given to *U. S. Pharmacopeia, the National Formulary, New and Non-Official Remedies,* and Accepted Dental Remedies items.

2. Unnecessary duplication is avoided.

3. Drugs with secret composition are not considered.

4. Mixtures are included only when they provide substantial advantage over the individual component."

Essentially, the reasons given here for having a formulary for U. S. Public Health Service hospitals are the reasons for having a formulary in any hospital, and the methods used in building the basic drug list are the methods used in most hospitals.

But, it may be asked, is all this really necessary? This is a reasonable question, and I suppose the best answer is in the survey of new drugs by Paul de Haen that was first published about a year ago, covering 322 new pharmaceutical products introduced by 86 different manufacturers during 1951. Within this group, the survey showed, there were 35 separate basic drugs, 74 duplications and 211 compounded items or combinations. At this rate, you can imagine what happens in the drug room of a hospital where 50 or 100 doctors are treating patients and prescribing drugs if there is no systematic routine for evaluating new items. What the introduction of a systematic formulary operation does mean to the hospital is suggested in a remark made to me not long ago by the administrator of a 100 bed hospital in New Jersey. For years, the hospital got along with a part time pharmacist and a hit or miss, or "doctor's choice" method of buying and stocking drugs, because, as the administrator related it, "we couldn't afford a full time pharmacist." Today the hospital has a full time pharmacist, at $9,000 a year, and again quoting the administrator: "It's saving us money."

Importance Of Control

Of course, the economies that result from having a capable hospital pharmacist do not emerge entirely from better purchasing and inventory practice, important as they are. The most significant losses come from lack of adequate control of the distribution of drugs within the hospital, and the most significant savings result when effective controls are established. Unless adequate records are kept when drugs are sent from the pharmacy to the floors and nursing units, and again when they are dispensed to patients within the units, there is no basis for making the proper charge to the patient for the drug, and control of an important source of revenue is lost. Especially in our smaller hospitals, the methods of keeping these records and making these charges are likely to be haphazard. I suggest that a manufacturer in your field might perform an outstanding service for hospitals by appropriating some funds for a thorough study of this problem, possibly looking toward the development of a standard procedure, and standard forms, for the distribution of drugs and the control of drug charges in the small hospital. Such a study, it seems to me, would offer the manufacturer the same opportunity to serve the profession that exists in the chemo-therapeutic research on which millions of dollars are spent every year—with the same beneficent implications for sales. The problem is by no means restricted to the small hospital.

Importance of Good Pharmacy

What do good pharmacy and formulary practice in the hospital mean to you? In the first place I think we must deal with the notion that drug standardization implies inflexibility and the exclusion of many useful items, as it is sometimes charged. There are some hospital formularies, and some staff pharmacy committees, that are guilty of inflexibility and illogic, of course, but this is no reason to condemn all formularies and all pharmacy committees. "Any plan in the direction of rationalization must be flexible," J. S. Mordell, chief of the pharmaceutical service of the Public Health Service Outpatient Clinic in Washington stated recently. If this one concept is not understood and is not kept indelibly in view, no plan will work. It won't work because, on the one hand, we are dealing with a dynamic field in which changes occur rapidly. On the other hand, compulsive adherence to standards leads to defeat of initiative and stultification of the kind of thinking this approach is designed to encourage and promote. Another charge that is often heard is that the development of hospital formularies operates to exclude proprietary or trade name drugs. To answer this charge, I should like again to quote Don Francke. He says, "Any trade name drug which represents a basic advance in therapy can be and, as a matter of course, is used in hospitals which employ the formulary system. It is true that most hospital formularies, like the *U. S. Pharmacopeia,* the *National Formulary* and the *N. N. R.,* also employ the generic name of the drug as a matter of policy; but this in no way interferes with the use of the trade name drug in the hospital. This does not mean that trade names are not used in hospitals under the formulary system. In fact, they are used. But rather than making each of them available a selection is made and the results of this selection have nothing to do with the fact that one or more may bear a trade name. The important point is that no physician is deprived of the use of the basic drug in his practice."

Probably the net result of all this is that it is harder for your manufacturers to sell the hospital with a formulary than it is to sell the one without a formulary—but once you are in, you are in good. This may mean more to you in the future than it has in the past. In the past, most of you have operated on the theory that if you could sell the doctor he would take your product into the hospital. In the future, this procedure may be completely reversed. If you sell the hospital and get in the formulary, the doctor will take your product into his office practice.

Role of Physician, Pharmacist, Administrator

Of course, there are three people involved in the hospital's purchase of drugs: the physician who is the ultimate user of the product, the pharmacist who is, actually, a consultant to the physician in the selection and use of drugs, and the administrator, who manages the entire enterprise and carries the ultimate economic responsibility for all buying decisions, which is another way of saying that he wields a powerful influence in all buying decisions, because it is true in the hospital, as it is in business, that the man who signs the checks usually has something to say about whom they are payable to.

One effective method that has been developed in recent years to present new pharmaceutical products to doctors, pharmacists, and administrators is the hospital exhibit, in which the product, and product information, are on display in the hospital—usually in the doctor's lounge or staff room—and the manufacturer's representative is available to talk to interested physicians. Properly planned and carried out, the exhibit can be a successful sales technique, but, unfortunately, there are some manufacturers who have abused the method by interpreting the arrangement as a sort of hunting license which permits the representative to prowl the hospital corridors, buttonholing doctors at will and generally interfering with and

upsetting hospital routines. Because of such abuses, the exhibit technique has fallen into disrepute in many places, and unless the misdirected enthusiasm of a few representatives can be curbed, the method may be lost to all. I suggest that an appropriate activity for an association such as yours might be to develop a standard technique for presenting product exhibitions in hospitals—a sort of "Hospital code of ethics for the pharmaceutical manufacturer" which your membership would then agree to abide by. Certainly you would wish to develop any such regulations in cooperation with hospital people, and I am sure that hospital administrators in your area would be delighted to work with you toward this end.

Drug Market In Hospitals

How important is the hospital market? This can best be answered with a few figures taken from our own market studies. Most significant is the fact that hospital purchases of ethical pharmaceuticals increased 75% from 1949 to 1951—the last full year for which we have figures. During that year, hospitals spent an estimated total of $242,570,000 for ethical products, compared to $137,800,000 in 1949.

Recently for the first time, a serious attempt has been made to determine exactly how much of some 700 items hospitals actually buy and use in a year. This was done by the Division of Civilian Health Requirements of the Public Health Service last year as a part of the national defense mobilization program. The results of these studies have just been published by the Department of Health, Education and Welfare under the title "Keeping Our Hospitals Operating." If any of you have misgivings about the size and importance of the hospital market for pharmaceutical products, I suggest that you get a copy of this book from the government printing office and study the reports on hospital use of drugs and chemicals. It will persuade you that the hospital market is already a great market, and I hope I may have persuaded you this morning that it is also a growing market.

It must continue to grow for three reasons: First, the number of hospitals will increase. Even at the near billion-dollar-a-year construction rate of the last few years, we have barely kept pace with the population growth; we haven't yet made a serious dent in the 900,000 bed deficit that was reported by the National Commission on Hospital Care in 1947.

Another reason is that every hospital will continue to become increasingly the focal point for all medical care in the community. As a hospital reporter I may be expected to have a prejudice in the matter, so I shall not ask you to take my word for this. Instead, I shall conclude by quoting from a recent statement by a past-president of the American Medical Association, Dr. Edward L. Bartz of Philadelphia. In an article in *The Modern Hospital,* Dr. Bartz said: "As hospitals are becoming more and more health and medical centers, physicians of the community . . . are finding it advantageous to maintain offices within the hospital. Many physicians have found this to be less expensive than to maintain offices elsewhere. For those who are engaged in group practice the advantages are obvious. There is less overhead, and the pooling of space, resources and equipment works out to the mutual advantage of patient and physician. All hospitals in the future will regard the diagnostic clinic as a major feature of their organization. In the medical practice of the future, more physicians will be on a full-time basis; this is essential for the best medical care of the community. Another feature now in its infancy which offers rich promise is the extension program emanating from certain hospitals, by which mobile facilities become available to physicians who are caring for patients in their homes. A department of home medical service offers the merit of increasing the therapeutic armamentarium of family physicians for more nearly complete care of patients in their homes."

The final reason for the inevitability of continued hospital growth is the vast expansion in recent years of Blue Cross and other forms of hospitalization and medical care insurance, which is removing some of the financial barriers which in past years have prevented many families from seeking hospital care when they need it. With more than 80 million people now enrolled in hospital prepayment plans, it might be argued that we are reaching the saturation point in this movement, but recent studies reported currently by the Commission on Financing Hospital Care, an independent investigational body supported by foundation funds, are proving just the opposite. The hospital prepayment plans now enjoying the fastest growth, the commission reports, are those which have already enrolled the highest percentage of the population in the areas they are serving.

The Future

As it is in the hospital prepayment plans, so it is among hospitals themselves, and, I think, in business generally. And this is the most exciting phenomenon among all that we have been considering here. The most reliable barometer of future growth is past and present growth. In our economy, there is no force so powerful as a business or a corporation or a concept that is already on the march. For your position in our industry, as for mine, the future holds great promise.

a new method of STERILIZATION

by KURT STEIGER, FELIX HIPPENMEIER *and* RINO MEYER

USE OF PARENTERAL SOLUTIONS and other sterile products of all kinds is growing every day. For each of these products we have to choose the suitable method to free it from any living micoorganisms without destroying the active principles.

The Classic Methods

The classic methods described in the U.S.P. XIV are in many cases satisfactory:

1. There is no safer system to sterilize a spatula than the free, direct flame.
2. The hot air oven works very well in sterilizing bottles, jars, and similar items.
3. Heating with a bactericide to 100°C. in free flowing steam may be satisfactory for many solutions.
4. Heating in an autoclave to 120°C. for 30 minutes gives safe and reliable sterility.
5. Bacterial filtration certainly removes all bacteria *and* spores.

Hence, do we not have at our disposal sufficient different sterilizing methods? Why should we search for new ones? The answer is evident when we note that present methods are not altogether satisfactory:

1. The flame destroys every organic material, down to carbonic acid and water.
2. The hot-air method takes considerable time. To reach a temperature of 180°C. in a pound bottle, filled with a powder, we need up to three hours of heating, whereby the outer layers of the powder are over heated, while the inner ones hardly reach the necessary degree of temperature.
3. The heating with a bactericide and autoclaving are often destructive for many active substances and the sterilfiltration requires, in most instances, a transfer of the filtrate into the final bottle or ampul. In such cases, contamination is always possible.

DR. KURT STEIGER is chief pharmacist, DR. FELIX HIPPENMEIER is a pharmacist specialist on high frequency problems and MR. RINO MEYER is a staff pharmacist, all at the Kantonsapotheke in Zurich, Switzerland.

Presented at the Decennial Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Philadelphia, Pa., August 21 and 22, 1952.

In any case, all classic heating processes are uneconomical. As an example, a liter of liquid may be heated to kill a few bacteria weighing perhaps a thousandth of a milligram.

Newer Methods

For these reasons, everywhere in the world, research people are at work trying to find newer and more satisfactory methods of preparing sterile products. Let us briefly consider some of them.

1. *Heating with Infrared-radiators*

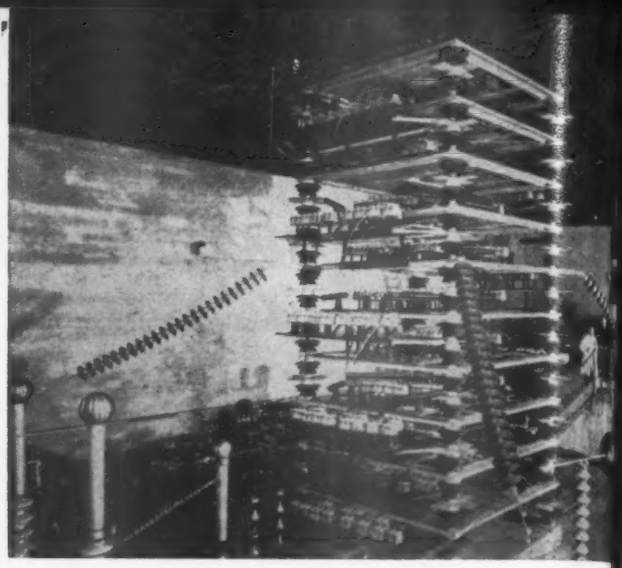
The heating with infrared-rays is very similar to heating in a hot-air-oven. But as the rays are directed, there is the possibility of transferring the entire energy on our product, insofar as the whole radiation is actually absorbed. The heat is then expanded from the warm surface to the deeper layers of the material, a process which depends on the heat conductibility of the substance.

For special purposes, especially for surface sterilization, the infrared-radiation may be a very valuable method, but only for products tolerating high temperatures.

2. *The Ultraviolet Irradiation*

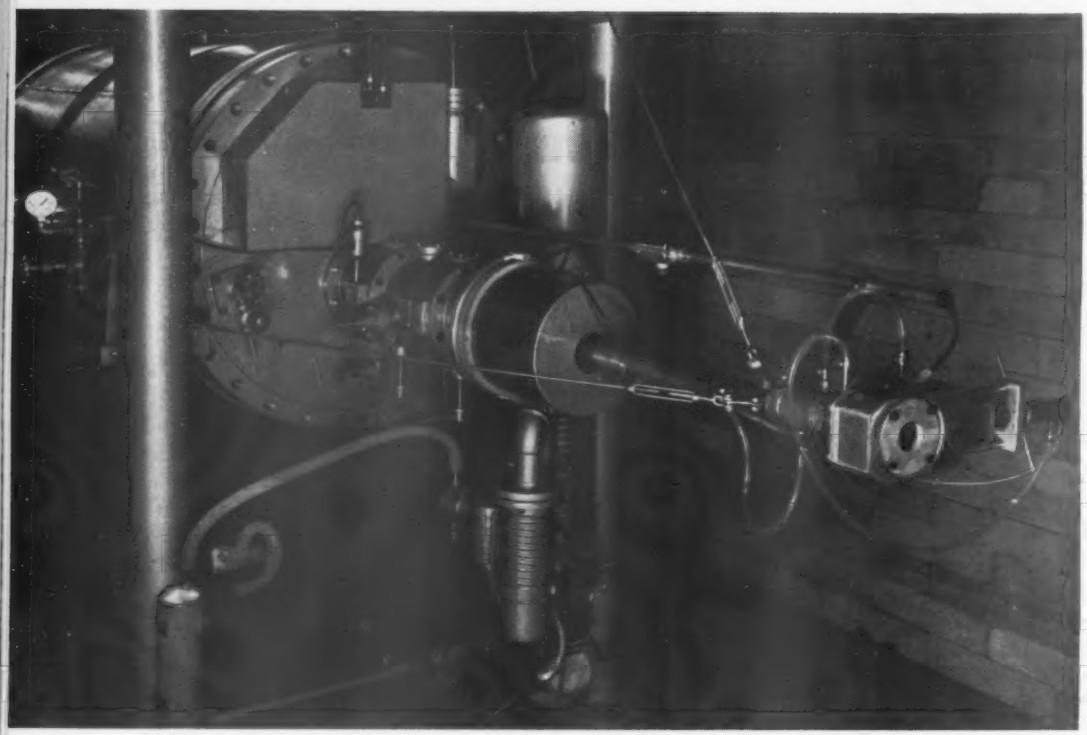
Use of ultraviolet rays of the active wavelength of 2540 Angström is wide spread in the industry and hospital pharmacies to disinfect air, walls, floors and tables in so-called "sterile" rooms. We know that these rays possess a very high destroying power against unprotected microorganisms; but even the shells of spores may be a fair obstacle to ultraviolet rays. Dust, dirt, and even most kinds of glass, absorb so much of the ultraviolet energy, that no more certain effect on bacteria is to be expected. The same is true for most solids and for colored fluids, except for the very external stratum. Thus, the application of ultraviolet rays is limited to special processes, but even then we have to keep in mind how active such a radiation may be on the product to be sterilized, because

Capacitron of Brasch and Huber



Two Million Volt Van de Graff Electron Accelerator for Sterilization Research

(COURTESY OF ELECTRONIZED CHEMICALS CORPORATION, NEW YO



(COURTESY HIGH VOLTAGE ENGINEERING CORPORATION, CAMBRIDGE, MASS.)

nearly all pharmaceutical substances are very easily deteriorated by rays of this wavelength.

3. *Ultrasound Waves*

An absolutely different kind of wave is the ultasound wave. While the ultraviolent and the infrared waves are of the electro-magnetic kind, the ultrasound waves are real mechanical sound waves in any material like fluids or solids. It is possible to produce very short ultrasound waves, down to 10^{-4} cm. which is very near to the wavelength of the visible redlight. However, the character of this wave-type is different.

By exposing microorganisms to treatment with ultrasound waves, a great number are shattered into little pieces. In order to achieve this effect however, it is necessary to apply an ultrasound wave of a definite wavelength and intensity over an adequate period of time.

But what happens to a solution treated in this way? If there is any oxygen available a remarkable production of hydrogen peroxide arises, which is highly injurious to nearly all organic substances. Furthermore, in almost every case, the temperature rises, increasing the destroying power of the hydrogen peroxide on the active substance.

It is possible to sterilize products with ultrasound waves, but all products used in pharmacy are deteriorated by such a treatment.

4. *Capacitron*

The most interesting of the new methods to kill bacteria is indubitably the Capacitron and the Van de Graaff Electron-Beam Sterilization. But the size and the cost of such installations are prohibitive. No hospital pharmacy can afford to pay $80,000 to $100,000 for these sterilizer-units.

The Capacitron or High Voltage Electron-Beam releases electrons accelerated by tensions up to 10 millions volts. The normal output voltage lies around 3 million. These electrons are shot during one millionth of a second on the goods to be sterilized. The intensity of each impulse is of the order of 30,000 to 50,00 amperes. Because of the ultrashort radiation time the material is not heated at all; thus, one should be unable to notice any alteration. But even Brasch and Huber[1] of the Electronized Chemicals Corporation, New York, who worked on a large scale with the Capacitron, published some taste changes in foods, which they called "irradiated taste," and a Dutch research-man, who is working with a Capacitron, told me, that he sterilizd contaminated duck-eggs. "My beloved duck-eggs" he said, "became sterile; but they were not delicious duck-eggs any more, but only bad hen-eggs."

The Capacitron or the Electron-accelerator[2] is the most interesting instrument in the newer technic of sterilization, but we are until now only at the beginning of a development which is not yet ripe for general practical application.

5. *Addition of Radio-Cobalt*

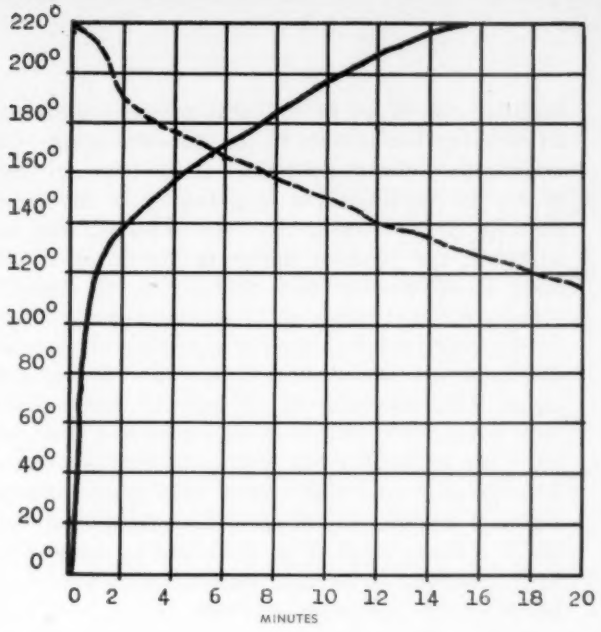
In recent times there have been some articles published dealing with sterilization of solutions by adding a small quantity of Radio-Cobalt, Co^{60}, to the products. This method may be of high value for special purposes, but it seems rather difficult to apply it in normal hospital practice.

6. *Radio-Frequency Heating*

In our hospital pharmacy in Zurich we were searching for better methods of sterilizing powders for surgical and dermatological use.

Twenty years ago much work was done on high-frequency sterilization in Germany and in 1938 Savage,[3] in England, made interesting investigations on this problem. But, as I am going to show you, the frequencies used in these experiments were not suitable for that special purpose.

Now we are fortunate to have a pharmacist, Dr. Felix Hippenmeier, in the cantonal pharmacy in Zurich, who is a specialist on high frequency-problems. On the other hand, a young pharmacist, Rino Meyer, is working in our laboratories on a thesis on sterilization problems and is interested in new heating-methods. So we had a little team to elaborate a new sterilization technic. Dr. Hippenmeier the expert for all technical matters of radio-frequency-heating, and Meyer for the bacteriological and pharmaceutical part of the work.



Heating ——————— *Cooling* — — — — — — —

Temperature within a two pound bag of talcum powder heated with a Philips radiofrequency generator of 15 megacycles per second (capacitive dielectric heating).

What is the meaning of radio-frequency-heating? If we have a condenser in an alternating current of the normal frequency of about 50 cycles per second, nothing will happen in a box filled with any pharmaceutical powder put between the two electrodes of the Capacitor. But if this alternating current changes its direction 50 million times each second, things look quite different. The powder becomes very hot in a very short time. In seven minutes the heat is up to 180° C. In a normal hot air furnace we need three hours to reach the same temperature in the center of the same box filled with two pounds of talcum powder. That is quite interesting—seven minutes instead of three hours. But even more interesting is the fact, that the heat is formed *within the powder*; thus the temperature is the same in every point of the goods and the heat is not proceeding from the outside to the center of the goods to be sterilized.

High Frequency Heating

High frequency heating can be divided into two different fields: The dielectric heating and the induction heating or Eddy-current heating. The latter is not discussed here.

Dielectric heating can be applied to non-conducting materials only, and takes place, when they are put as an insulating layer between the two electrodes of a high frequency generator. In one moment the upper plate is charged with the

negative electrons; in the next moment the electron-charge has moved to the opposite plate. Of course the electro-magnetic field between the plates, in the dielectric, is changing in the same rhythm. If we assume that our dielectric may be a dipole, the positive charge center of all molecules is directed toward the negatively charged electrode. The higher the frequency of the alternating current the faster the charge-center within the molecules must move from one side to the other. This reversion of the polarity takes place in a measurable time and lags always a little bit after the change of the tension of the electrodes. This polarity reversion cannot take place without losses of energy and these losses, called *dielectric losses* become evident in the form of heat. The heat produced in a given material may be calculated by the following equation:

$$P = 5.58 \times 10^{-13} \times f \times \frac{K \times \operatorname{tg}\delta}{\varrho} \times \frac{E^2}{d^2}$$

P = *heat*
f = *frequency*
K = *dielectric constant*
$\operatorname{tg}\delta$ = *loss angle*
E = *tension of the current*
ϱ = *specific weight*
d = *distance between the electrodes*

The heat P is proportional

(1) to the frequency = f of the current, furthermore to two very important constants of the material, namely
(2) the dielectric constant = K
(3) the loss *angle*, and especially to
(4) the square of the tension of the current = E^2

The heat P is *inversely proportional*

(1) to the specific weight and
(2) to the square of the distance of the two electrodes = d^2

To quickly reach a high temperature, it is therefore important to make the distance between the two electrodes as small as possible and the condenser-tension as high as possible. We worked with two different generators, one with a frequency of 15 million cycles per second and one with 73 million cycles per second. The results are satisfactory. Spores of a resistance to free flowing steam for several hours were killed in the midst of a two pound bag of talcum powder in 20 minutes.

But there are a great many difficulties as yet not thoroughly solved. The two constants, K, the dielectric constant, the specific weight, and the loss angle, are changing during the heating process with dryness and moisture of the products and it is not easy to reproduce consistently the same experiment under identical conditions. As a heat sterilizing process the dielectric heating has great advantages over the hot air furnace, but, like all heat-sterilizations it is uneconomical, because we are heating a tremendous mass of substances and fluids, to kill a few microorganisms of practically no weight. The problem, which is still to be solved, is to find a method to strike the microorganisms without any heat-deterioration of the surrounding medium and the active principles of a solution. We believe, that the radiofrequency heating is one of the means to reach this goal.

The dielectric constants of water and of proteins are very different, and they are not constant in the whole range of the high-frequency fields. Every dipolar substance shows an *anomalous dispersion* of the dielectric constant at specific frequencies (water f. i. at a wave length of 18 mm = 17,000 megacycles per second) because of a remarkable *phase delay* at this very frequency.

PHOTO 1: *Philips high frequency generator of 15 megacycles per second (left); electrodes in a heat insulator (right); between the thermoregistration for three different measuring points. (Kantons Pharmacy, Zurich).* PHOTO 2: *Details of the high frequency electrodes; heat insulator open (right). Thermoregistration (left); between the switch for three thermocouples (Kantons Pharmacy, Zurich).*

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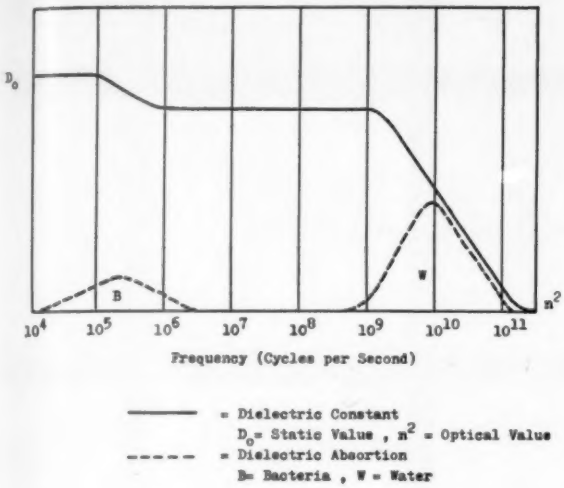
Bacteria in Water in an Alternating Electric Field



The curves of the dielectric constants are breaking down from their static to their optical value and the curves of the dielectric absorption climb at the mean-wave-length of this break-down to their highest peaks. So we can expect, that just here at this critical frequency something must happen.

And now let us see, what kind of generators we need, to get a high absorption of energy in bacteria. Cohn and Edsale[4] of Harvard University are talking of a range of 10^3 to 10^7 cycles per second, corresponding to wavelengths from 300,000 meters to 30 meters for a maximum absorption of energy in proteins and other very large molecules. We measured the absorption of suspensions of *B. coli* and *Staphylococci albi* and yeast in water and found in some primary experiments which cannot yet be regarded as definitive, a maximum loss of energy at 300,000 to 370,000 cycles per second. It is rather astonishing, that these three organisms show the highest absorption at the same frequency. But it is possible, that they all have a similar protein in a predominant concentration, showing such a typical behavior. Already we can conclude that sterilization experiments should be performed with generators yielding the critical frequencies of proteins, being between 0.1 and 1.5 megacycles per second i.e. with wavelengths of 3300 meters to 250 meters and *not* the high frequencies used by previous workers (Savage[3], Schliephake[5,6,7], etc.) We believe that it should be possible to construct without any difficulties generators with such frequencies and sufficient high power to yield a specific destroying effect on a certain class of big molecules, like proteins, without the undesirable side effects such as heat production in the surrounding medium.

The attack on protein molecules in a radiofrequency field is never so rough as the treatment with a Capacitron or other electron-accelerators, radiating into the treated goods *Beta rays,* disturbing the structure of the electron-shells nearest the nucleus of an atom. Also the attack with radiocobalt, the x-ray and ultraviolet rays are very rough means reaching far into the inner structure of the atoms. But the radiofrequency denaturation of proteins is much finer. The inner structure of the atoms and molecule parts is not affected, but the whole molecule and the stereoarrangement of the protein network is alterated by the high-frequency treatment in the range of 0.1 to 1.5 megacycles per second. Radiofrequency sterilization seems to be the least offensive treatment since it is possible to radiate just sufficient energy in a very selective way into the main proteins of the bacteria to cause irreversible denaturation which stops the reproduction and can also directly kill the bacteria if sufficient dosage is utilized. On the other hand, substances of smaller molecular weight, like sugars, vitamins, alkaloids, hormones and similar items are not affected and do not react in such a field.

The advantages of the radiofrequency sterilization are evident:

1. The sterilization time would be extremely short.
2. The material to be sterilized would not be heated or altered at all.
3. The consumption of energy is low.
4. The cost of the radiofrequency sterilizers for mass production of sterile goods would be relatively low.

I am sorry to tell you, that we could not yet prove by experiment whether our theory is correct or not, because the necessary generators do not exist in our pharmacy. But I am convinced, that when we have the necessary instruments, the experiment will prove the correctness of the expounded hypotheses.

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United States Medical Center for

FEDERAL PRISONERS

by EDWARD J. MARTIN

AMIDST THE MULTI-COLORED PATCHWORK of rich dairy farmland, two miles southwest of the city of Springfield, Missouri stands the impressive structure known as the Medical Center for Federal Prisoners. Its clean New England architecture and beautifully landscaped grounds are reminiscent of a modern college for custodial features are not accentuated. This institution's role in the Federal Prison System is of the highest importance, for actually it is a 1142 bed hospital with active medical, surgical, tuberculosis, and psychiatric services.

Almost everyone is curious about life behind prison walls. Unfortunately, the principal sources of information on the subject are motion pictures or contemporary novels purportedly depicting "life in a typical prison." Since these too often distort the truth in the interests of a good story, the general public gains only misconceptions and thus loses sight of the objective of the Federal Bureau of Prisons—The Reclamation and Regeneration of Americans Who Have Faltered or Fallen. The Bureau is fulfilling admirably its constantly increasing responsibilities.

The Medical Center was built in 1933 to fill the need for a centralized hospital in the Federal Prison System, since the individual institutions are not equipped to take care of chronic disorders among their populations. The creation of the Medical Center has improved the efficiency of the medical and hospital units in all Federal penal and correctional institutions, making more hospital beds available for the acutely ill.

All patients received at the institution, with few exceptions, are transferred there from other penal institutions. Occasionally men are committed directly by the courts, but only by special arrangement. When patients arrive at Springfield, they are immediately assigned to the receiving wards, where they remain for a period of thirty days to permit the staff to become acquainted with them and to provide opportunity for medical and psychiatric classification. Although transfers to Springfield are made upon recommendation of classification committees in other institutions, it has been found advisable to reclassify after arrival, not only to verify previous opinions and diagnoses, but to effect more precise evaluations upon which treatment here is based. Patients are segregated into four groups: (a) tuberculous, (b) chronic medical (degenerative diseases predominating), (c) psychotics (definitely insane), and (d) psychopathic.

Practically all prisoners suffering from active pulmonary tuberculosis are transferred to the Medical Center. Here they are placed in wards

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U. S. Medical Center for Federal Prisoners, Springfield, Mo.

especially designed for their care. Active cases are not permitted to mingle with other classes of inmates. Treatment includes rest, artificial pneumothorax, chest surgery when indicated, and other standard procedures. Rest is regarded as one of the most important therapeutic factors, but prisoners are so often afflicted with emotional disturbances such as hate, fear, or anger, which cause chronic tenseness, that favorable prognosis is sometimes difficult or even impossible. Thus psychotherapy assumes more than usual importance in the treatment of tuberculosis in a prison hospital.

The chronic medical patients comprise a heterogeneous group. The normal bed capacity for this class accomodates 361 patients. Although circulatory and cardiac disorders predominate, many and varied other diseases are present also. Acute medical and surgical operating rooms with and completely equipped operating rooms with standard facilities are immediately available for all needs. In addition to the usual diagnostic x-ray equipment, a modern deep x-ray therapy unit is used for the treatment of cancer patients.

One of the most important functions of the Medical Center is its work in the field of neuropsychiatry. This service comprises the treatment of psychotic and psychopathic persons—the latter group claimed by psychiatry to be suffering from "border-line and ill-defined mental disorders." In the past, admissions to Springfield for psychiatric reasons were limited to those with true psychoses, but more recently, eight new wings, designated for the study and treatment of psychopathic patients, have been added to the Medical Center. Since little is known of the true nature of the pathology from which so-called "psychopaths" suffer, intensive research is being carried on and valuable information is being tabulated.

Special Controls Required

To describe an average day in the pharmacy would be largely without interest, for it is similar to that of any hospital pharmacy in the country. The difference is not in the way ward requisitions and prescriptions are filled, but in the special controls required. With approximately 1,000 inmates, comprising a heterogeneous sample of Leavenworth, Atlanta, Alcatraz, and all the other Federal penal institutions in the country, housed in an area slightly smaller than a city block and suffering from the whole category of ailments, the need for special safeguards is apparent. Such a group naturally is composed of individuals from all walks of life, and some means must be used to maintain social equality among them. It can easily be seen that men with a background of wealth could, if permitted, gain enormous power in the institution by showering

the less fortunate with bribes and gifts. This must be prevented at all costs. For that reason, no man in the institution may spend more than ten dollars a month at the commissary. Since money cannot be used indiscriminately by the inmate, cigarettes, sugar, coffee, drugs, and similar commodities may serve as a medium of exchange. Prisoners in general, and narcotic and alcohol addicts in particular, are characteristically on the lookout for anything that will give them a "kick." Due to the high priority of drugs in the prison medium of exchange, any tablet obtained in the illegal market acquires a false value to the inmate who is constantly searching for something to relieve the monotony of his life, even for a few short minutes. An occasional few are apparently never without hope of buying or stealing narcotic tablets or preparations that may be supposed to produce semi-narcotic, hypnotic, intoxicating, stimulating, depressing, or other sensations. Constant vigilance must be exercised to prevent some of the more enterprising inmates from preying upon their fellows. These "shot peddlers" obtain a supply of tablets (the action of the medicament is unimportant), make a homemade hypodermic apparatus, and go surreptitiously among the other inmates selling their wares. They are ingenious and clever in secreting these hypo-kits in hollowed-out books, eye glass cases, and other similar unexpected places. Whether the tablets are sodium bicarbonate or an actual hypnotic is unimportant, for the "kick" is derived from the ceremony of "getting a shot" rather than from any action that the drug itself may have. Various articles which, because of the addict's skill in converting them into hypodermic paraphernalia, must be regarded as "hot" or contraband in nature, are rubber tubing, glass tubing, medicine and eye droppers, converted fountain pens, and the like. Indeed a desperate addict can give himself a hypodermic injection by puncturing his skin with a safety pin or a nail and then, slowly and with infinite patience, forcing a solution through the open wound with some type of pressure apparatus such as a rubber bulb.

It follows as a necessary corollary that the medical staff must be impressed with the intrinsic truth of that axiom of penology—The Classical Constitional Psychopathic Inferior Has A Better Than Average Intelligence Quotient And Is Likely To Be A Good Deal More Adept Than The Officer In Matters Involving Underhand Transactions. An inmate may present himself at sick call with an asthmatic condition that clearly indicates the need for a bronchodilator such as ephedrine sulfate, but instead of giving the patient capsules to take as directed, the physician must see that he takes the medication under supervision. For, badly as he needs the drug, he may need a cigarette even more, and so the drug gets into the prison barter market. Parenthetically, the wise physician will make sure that the medication is actually swallowed and not tucked under the tongue to be later converted into what is known in prison jargon as "cigarette wealth."

Another pressing problem in the same category is that of control of alcohol. Yeast, for instance, is eagerly sought by some individuals who persistently try to manufacture fermented drinks, known by varients of the generic name "pruno." Constant attempts are made to convert fruit juice, potato peelings, or almost any similar organic matter into home brew. Anything that smells, tastes, or in any way resembles or suggests alcohol must be under rigid control, for some inmates are not particular whether the product is "grain," "wood," "denatured," nauseous, or marked "poison," so long as there is a possibility of associating it with intoxication. As a matter of actual record, it is not uncommon for inmates to drink such astounding beverages as the fluid out of fire extinguishers, disinfectants, varnish solvents, *et cetera*. Ingenuity has been shown in obtaining leather dye and then separating the dye from the alcohol solvent by such primitive methods as straining it through a loaf of bread. Unfortunately, many leather dyes contain methyl alcohol as a solvent, so extreme care must be taken with these preparations.

In addition to "edible" contraband, the medical staff must be constantly on the alert to recognize, detect, and safeguard other contraband that may be obtained from the hospital. For instance, hydrochloric acid, rectified spirits of turpentine, and green and red waterproof inks are sought by the counterfeiters of paper currency, while plaster of paris is desired by the counterfeiters of metal money. Nail files, dental burs, edge instruments, highly tempered dental picks, are used in filing bars, picking locks, and in stabbing and cutting affrays. Drugs which might be made into explosives must be kept under lock and key. These include such items as glycerin, nitric acid, sulphur, charcoal, potassium permanganate, and potassium chlorate.[1] Thus great care must be exercised in safeguarding many articles rarely regarded with suspicion outside an institution, for the prisoner is adept at converting "harmless" items into deadly instruments.

It is not the intention, however, to exaggerate or place undue emphasis upon the problems of control in such an institution as the Medical Center, but simply to point out that they do exist and to describe something of their nature. The primary purpose of a pharmacy in an institution of this kind is to provide an essential service in an over-

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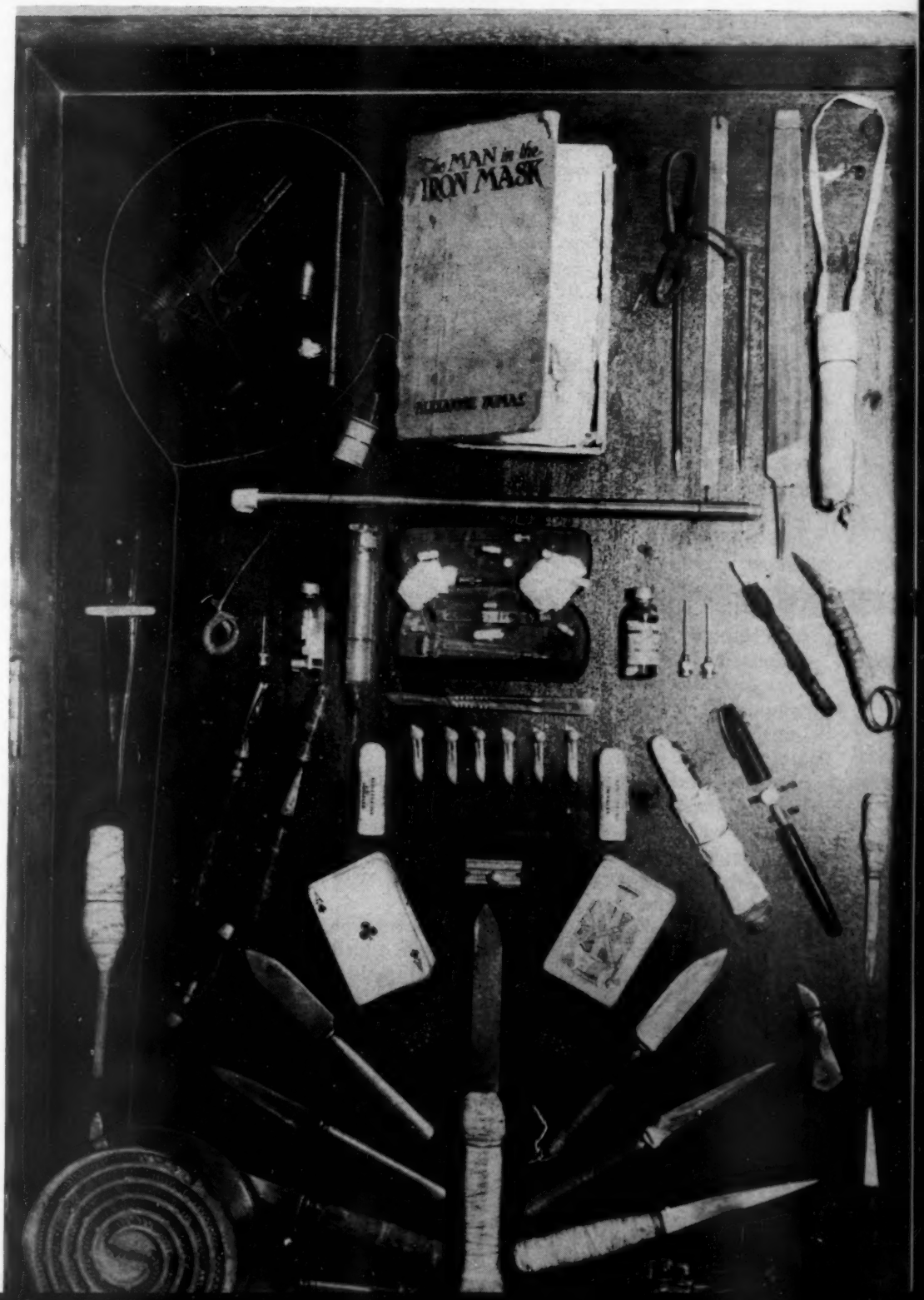
Contraband

Collection of E. T. Brown, Captain of the Medical Center's Custodial Force. Note the rubber gun which was smuggled into the institution, eye glass case and hollowed-out book used to transport improvised hypo kits, fountain pen syringes, toothpaste tube with knife inside, wire noose, files, razor blades, knives of assorted sizes, etc.



all rehabilitative program, to aid in the healing process wherever and whenever possible. It is to this end, and that it may not be a constant potential for disaster, that control and discipline in this unit must never be relaxed.

Modernization of The Pharmacy

Any pharmacist who has undertaken the Herculean task of converting a large hospital's "drug room" into a modern pharmacy can well appreciate the multiple problems that beset the author upon being assigned to the Medical Center. In the past, pharmacy as a profession has given little or no attention to the pharmaceutical service in penal institutions, although some of the larger prisons employ pharmacists for regular pharmaceutical work and to assist the physician by making tests of blood, urine, *et cetera*.[2] The assignment of a graduate, commissioned pharmacist in the Federal penal system was on a trial basis, and the extra expense had to be justified by tangible savings and improvement in the pharmacy department. Fortunately, both the Bureau of Prisons and the Medical Staff desire to correct existing discrepancies, and their full cooperation made the job immeasurably easier. During the first year of my assignment the following modifications of procedures were placed in effect:

1. Replacement of previously purchased items with station-manufactured U.S.P., N.F., and N.N.R. products. By means of a strenuous manufacturing program, the pharmacy department was able to initiate an expensive antibiotic program and still remain within the previous medical budget.

2. Institution of modern pharmacy procedures on all nursing stations, i.e., the use of standard size, correctly labeled containers for ward medication; emphasis on the importance of checking expiration dates and proper storage of ophthalmic solutions, bologicals, and potent drugs; monthly inspection of the ward drug cabinet and immediate correction of any existing discrepancies.

3. Lectures in pharmacology and pharmaceutical mathematics to the Medical Correctional Officers who act as nurses on the floors, and the writing of several study brochures to supplement these lectures. Inauguration of the metric system in the institution.

4. Creation of a U. S. Medical Center For Federal Prisoners Formulary. Any new item added to our armamentarium must be passed by the newly formed Pharmacy Committee with the pharmacist acting as secretary.

5. Introduction of the U.S.P.H.S. standard system for the control and issuance of narcotics, exempt narcotics, and barbiturates. This system has expedited the maintenance of daily records and provides a more adequate safeguard and control over narcotic and barbiturate supplies. The stringent pharmacy controls employed at the narcotic addict rehabilitation center in Lexington, Kentucky, were put into effect to prevent the diversion of drugs to improper use.[3]

6. Maintenance of a "live" therapeutic reference file in the pharmacy for the convenience of the Medical Staff.

7. Development of floor plans for a new modern pharmacy soon to supersede the old, inadequate "drug room."

8. Attendance of the pharmacist at the morning Medical Staff Meeting and participation in the weekly medical lecture period.

9. Acceptance of the responsibility for selecting, requisitioning, receiving, and storing all drugs, chemicals, narcotics, pharmaceutical specialties, and other medicinal agents for use in the hospital. By contacting the various manufacturers and returning expired or superfluous stock, considerable credit was obtained. In six months, by the return of unusable drugs, correct buying, and the manufacture of many U.S.P., N.F., and N.N.R. products, the pharmacy department was able to effect substantial savings.

Perhaps this brief glimpse into the problems and challenges met in this comparatively new field of pharmacy, will demonstrate how the profession can serve modern penology. Unfortunately, few people are acquainted with the sociological importance of penology, and therefore the regeneration and reclamation of prisoners commands little public attention. Yet for every 100 men who enter prison—men from every social and economic position, race, and nationality—95 Men Are Released. It is the hope and objective of the Bureau that these 95 men regain a respectable place in society. The successful synthesis of prison medicine and the custodial force in the attainment of this objective is best exemplified by the words of James V. Bennett, Director of the Federal Bureau of Prisons:

". . . The typical prisoner is just as complicated a person as the man in his community, and he is coming back to live as that man's neighbor. It is important therefore, that the prisoner be studied very carefully, that he be freed of his mental conflicts, cured of his physical defects, taught a trade, and shown that hard work can be an honorable and worthwhile substitute for the furtive hectic life of the criminal . . . "

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MEETING PROBLEMS OF DESIGN

A thought provoking discussion of common problems encountered by hospital pharmacists in planning new as well as in remodeling established hospital pharmacies. Here a pharmacist and an architect survey the problems.

by T. JOSEPH HOGAN *and* GEORGE F. ARCHAMBAULT

Mr. Archambault:

Size of Industry: There are in the United States and Canada some 6,500 hospitals. These hospitals represent an investment of approximately six (6) billion dollars with expenditures amounting to some two and one-half billion dollars yearly. These hospitals provide patient care for approximately 18 million individuals (16 percent of the population of the United States) each year and employ some 900,000 full-time employees. It is said that the business of hospitals constitutes the sixth largest industry in the United States. This is the "bigness" of the industry with which you, as hospital pharmacists, are concerned with in your day to day professional activities.

Age of Our Plants: To the best of our knowledge there are no available figures as to the number of these 6,500 hospital plants that are over 5 years old, over 10 years old and over 25 years old. However, if we, individually, will reflect on this point for a moment or two. I'm sure that most of us will reach the conclusion that of the hospital plants that we have knowledge, the ages of at least 50 percent of them will be over 10 years and many over 25 years. In other words, 50 percent or more are not modern plants. Experts tell me, that even taking into consideration the many new hospitals recently built, the average age of our hospitals is 25 years.

Trends Affecting Pharmacy: When one considers the progress made in patient care within the past

Presented at the Eighth Institute on Hospital Pharmacy, Toronto, Canada, June 24, 1952.

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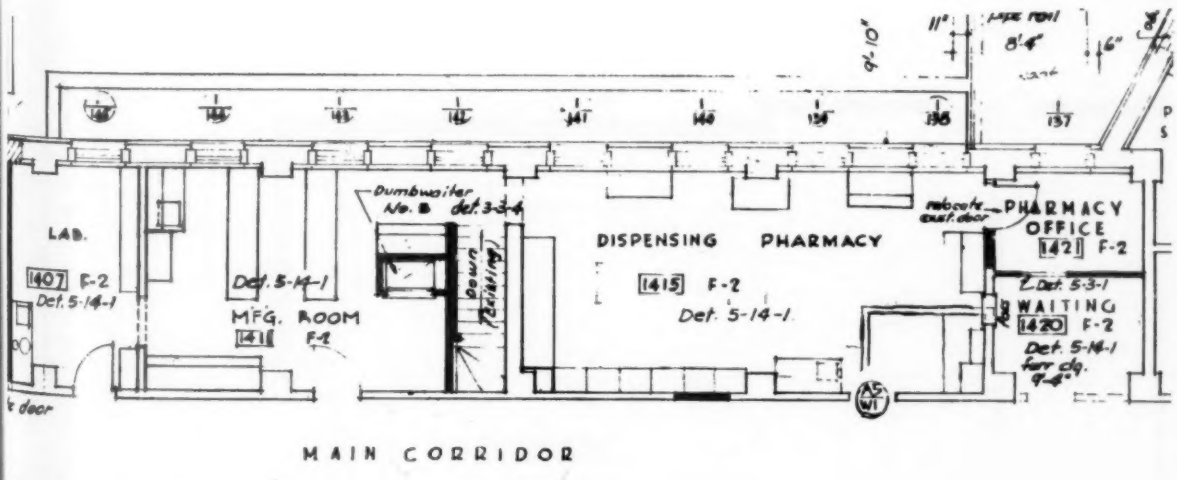

Plan for a New Outpatient Pharmacy in an Old Building—San Francisco, Calif.

decade and the facilities needed to give this modern care, one readily recognizes the dire need for expansion space for many of the old line departments. For example, 25, 15 and even 10 years ago, pharmacies, by and large, were in many instances, but "drug rooms." Architects placed this "drug or dispensing room" in a basement or out of the way space. Today—two things have happened: (1) the department, because of its many and varied activities is considered a "service," like Outpatient, Dietetic, Radiology and Nursing. It may have several subdepartments such as outpatient, pharmacy proper for house issues, manufacturing, prepackaging, bulk pharmacy storage, drug security vault, research, control and analysis area, parenteral and surgical fluid area, special technic area, allergy department and more and more of late—complete central sterile supply. These subdepartments demand certain minimum square footage for their proper functioning. (2) hospital administrators now recognize pharmacy as a major service and profit department. The pharmacy service is undoubtedly one of the money-making self-sufficient units of the hospital. If patients are to present themselves to the department, obviously, the department must be no less presentable than the other patient areas and be functionally located. Today, hospital administrators, by and large, accept as sound management, the concept that a pharmaceutical service should be located in a central place on the first floor, adjacent to outpatient activities and elevator facilities. In other words, located functionally in regard to "traffic flows."

Our assignment this afternoon is to talk over with you the subject of "Meeting Problems of Design for New and Established Pharmacies." Mr. T. Joseph Hogan, my associate, is the chief of the Construction and Maintenance Branch of the Division of Administrative Management, Bureau of Medical Services. U. S. Public Health Service. Mr. Hogan is no newcomer to the hospital field. He has served on other Institutes of the American Hospital Association. However, this is his first appearance at a Pharmacy Institute. On Friday, Mr. Hogan is scheduled to speak to you on "Distilled Water and Stills." He is our expert on this subject as well as on other problems of construction and maintenance. Mr. Hogan—will you take over for a few minutes and tell the group how we plan to tackle the problem this afternoon?

Mr. Hogan

Designing Pharmacies: We are going to talk about designing pharmacies for new hospitals and redesigning and relocating pharmacies in existing hospitals. It is the dream of most hospital people that they will sometime have an opportunity to plan and then occupy an area in a new hospital. If you have been a part of such planning you have had your ideas changed and you may be disillusioned about the unlimited possibilities in new construction. The square footage available for

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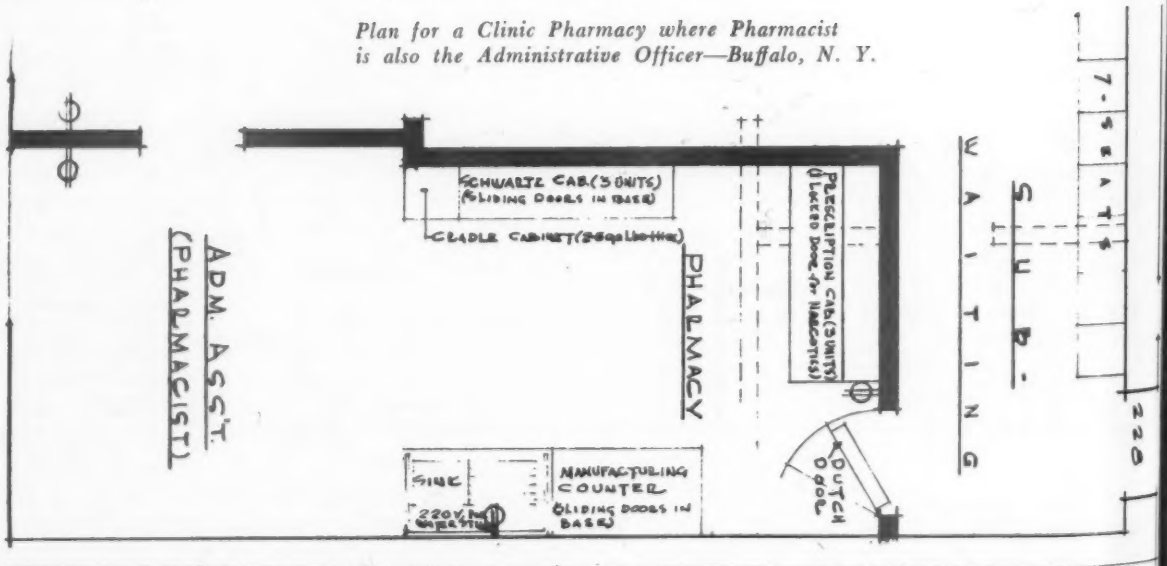
Plan for a Clinic Pharmacy where Pharmacist is also the Administrative Officer—Buffalo, N. Y.

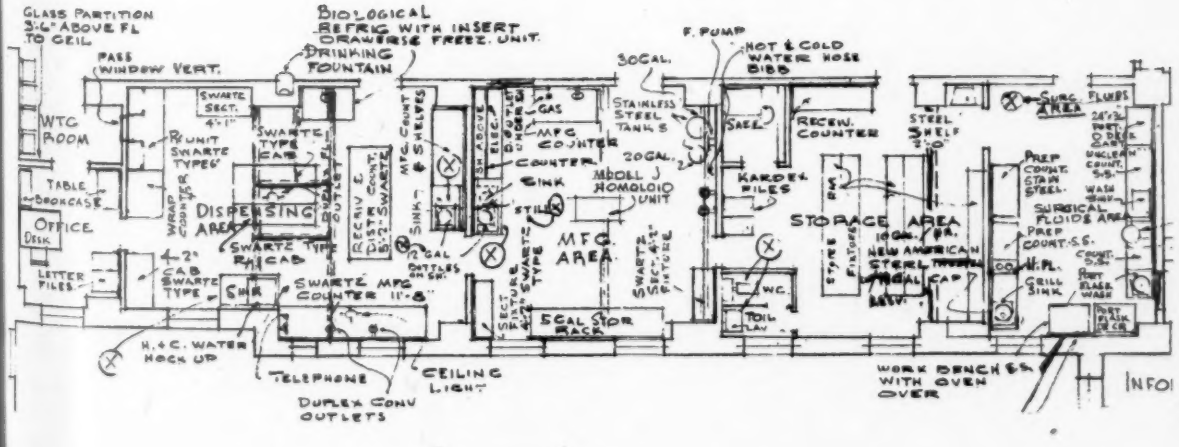


your particular department is compressed and consolidated by all the demands for space, by peculiar land site and terrain and by dollars. The pleasures of occupying a new Pharmacy are greater in the renovations of an existing hospital. You have occupied the old Pharmacy and are aware of its limitations, deficiencies and inconveniences. By comparison the greatest pleasure is derived from occupying the renovated or relocated Pharmacy.

Salient Points: To be of assistance in planning the Pharmacy you need to be aware of some salient points. It is well to write a program of what you intend to do and how you plan to do it within the square footage allotted to your department. You will be confronted with such terms as "wet" walls which are walls containing the various utilities—hot and cold water, steam and condensate, electrical services and waste and vent lines. In the renovation jobs these walls are costly to disturb but not as impossible as you are sometimes led to believe. There are "partition" walls which can be moved and "bearing" walls which should not be moved. In planning your equipment you need to be specific about electrical services—record the necessity for 110 or 220 volts, the phase of equipment to be used, the cycle if the power is alternating current and special attention called to the fact if it is direct current. The total connected electrical load should be determined so that sufficient copper is available in the electrical feeder. The location of wall switches and the "spotting" of duplex receptacles is important.

Still and Sterilizer: There are sanitary codes which must be adhered to and which will influence installation of equipment. As pharmacists you should be particularly concerned that all pieces of equipment are installed to prevent backsiphonage. You need to consider the necessity for piping air, gas and vacuum to the area and after technical consultation you may decide that any one or all of these can be eliminated for economical reasons. In the installation of a still you can best advise as to its location for functional service but you may need to compromise for an economic installation. Be sure that the still is mounted at a height easily within eye level to insure good maintenance. Provide a sufficient number of reservoirs—two or more— in conjunction with the still. If an autoclave is to be installed be sure that it is specified to provide capacity for sterilizing a double row of flasks. The 24 x 36 x 48 inch autoclave will provide this requirement. In the selection of still and sterilizer it will be necessary to determine the availability and preference for steam, electric or gas mediums of heating.

Lighting: The lighting of the pharmacy is important for safety as well as efficiency. Lighting for general illumination can be either incandescent or fluorescent with provision made for concentration of light and sufficient foot candles in the critical areas of the pharmacy where high intensity light is mandatory.



Plan for a New Pharmacy in an Old Building—Norfolk, Va.

Floor Covering: Attention must be given to the type of floor covering which will be installed. This may be dictated by an overall hospital policy or perhaps you may have a choice in the selection. If the recommendations are to come from the pharmacist there are many types of flooring to be investigated—asphalt, rubber and vinyl tiles, quarry and ceramic tiles, cork, linoleum, wooden, and cement. The working conditions of the Pharmacy can be improved by the installation of acoustic tile on the ceiling. Initial cost may dictate that the ceiling be plastered and have a painted surface.

Transportation: The Pharmacy requires vertical transportation to and from the nursing units. It is well to predicate the area selected for Pharmacy on the availability of stairways, elevators and dumbwaiters. If possible a dumbwaiter should be installed within the Pharmacy at least to connect that area with the storage space. The installation of pneumatic tubes should be investigated by the pharmacist and its initial cost matched against the annual personnel savings and efficiencies. The pharmacy storage space does not of necessity need to be on the same floor level. Bulk storage space can be provided in the basement or less valuable area than that required for the location of the Pharmacy.

Security: The security of the Pharmacy should be planned during construction or renovation. Attention should be given to types of windows and doors and ease of securing them. The Harrison Narcotic Act does not require burglar security but hospital pharmacies, having larger stocks than other type pharmacies, do more about protection than others who dispense narcotics. Safety types of protection screen are available and provide security, act as insect screens and eliminate the prison look created by barred windows. The design and location of a vault for alcohol and narcotic storage, with the necessary safety and explosion-proof precautions, are within your province.

Mr. Archambault

Approach to Planning: Each of you have received sketches of some 10 pharmacies that we have actually designed in the last 4 years—Norfolk, a new pharmacy in an old hospital; Buffalo, a clinic Pharmacy where the pharmacist is also the Administrative Officer, Miami and Pittsburgh likewise. Staten Island, an outpatient pharmacy; San Francisco, a new Pharmacy in an old building; New Orleans, a new pharmacy in an old building; the Barge Office, New York City, a new pharmacy in a new building; and Seattle, a new pharmacy in an old building.

I believe you would like to hear something of our approach when we tackle one of these jobs—let us take the Norfolk plan for example:

Mr. Hogan, will you describe our plan of attack on a problem like this?

Mr. Hogan

Floor Space: Yes, Mr. Archambault—What we first want to know is how much space does pharmacy need? What is optimum and reasonable? Fortunately, we have some yardsticks for comparison in this work. For example:

1. *Minimum Standards for Pharmacies in Hospitals,* THE BULLETIN of the ASHP, Vol. 5, No. 5, (1951), page 232, "Floor space in the pharmacy shall amount to not less than five square feet per hospital bed. The hospital pharmacy engaged in the manufacture of pharmaceuticals and parenteral solutions shall have additional space as required for the proper carrying out of these functions."

2. "Six hundred square feet for the first one hundred beds, five hundred square feet for each one hundred beds thereafter." Morrison, *Hospitals,* April 1947, Vol. 21.

3. "One thousand square feet for the first one hundred beds, five hundred square feet for each one hundred additional beds." Lauve, *Hospitals,* March 1946, Vol. 20.

4. "Each pharmacist should have a working area of twenty square feet counter space, forty square feet floor space." Serles, A.H.A., Cleveland, 1944.

5. "100 beds—1,000 square feet
200-300 beds—1,500-2,000 square feet
400-500 beds—2,500-3,000 square feet
600-700 beds—3,500-4,000 square feet
800-1,000 beds—4,500-5,500 square feet
Over 1,000 beds—500 square feet for each additional one hundred beds." Remington, 9th Edition, page 1,269, "Minimum Floor Space for a Hospital Pharmacy."

6. Hospital Facilities (ASHP approved)
50— 205 square feet
100— 630 square feet
200—1,180 square feet

My own belief is that (1) is correct if amplified. That would include the insertion of a statement that bulk compounding area and parenteral room area is over and above the quoted figure of five square feet per bed. Also, Pharmacy Storeroom area in a less valuable space area is not included.

My concept of a total hospital pharmacy consists of the following areas:

1. Waiting Room
2. Office for Chief of Service
3. Dispensing Area
4. Bulk Compounding Area
5. Parenteral Room
6. Ward Basket Filling Area
7. Pharmacy Storeroom
8. Control Room
9. Special Technic Area
10. Alcohol and Volatile Liquid Area
11. Narcotic Storage
12. Allergy Preparation Room
13. Research

Items 1, 2, 5, 8, 12 and 13 depend upon the size of the institution as to need for inclusion.

With this as background material, let us go back to Norfolk. Mr. Archambault, what are the statistics on the hospital pharmacy?

Mr. Archambault

Present Location and Workload: At present, we have the Pharmacy on the first floor of the hospital; adjacent to it is the Pharmacy Storeroom. The Pharmacy is considerably removed from outpatient activity and quite inadequate as to space. Further, patients walk into the pharmacy work area for service which is a bad practice.

The bed capacity set up for Norfolk is 354. The constructed bed capacity is for 316 beds.

Work load daily average (based on one year's experience) is:

	Annually	*Daily*
Prescriptions	14,652	58+
Ward and Clinic Issues	62,036	248
Bulk Compounded Items	1,903	7
Total Units	78,591	313

Highlights of New Pharmacy: If you will look at the Norfolk plan I will point out some of the highlights.

1. The outpatient prescription dispensing area is designed for one operator (58 prescriptions daily) with space available for two operators in peak periods. (Note the second dispensing spot available in plan.)

2. The location of Pharmacy is adjacent to elevators and outpatient clinic (traffic flow), on the first floor, just off the lobby.

3. Looking at your plans, you see we have planned for the following areas in the department—waiting room, office, dispensing, bulk compounding, and storage.

Mr. Hogan

Location: Fine—from this you can see we need roughly from 1,580 to 1,770 square feet of space—316-354 beds at 5 square feet per bed.

Our next problem was to locate this amount of square footage in a going hospital. We found by juggling the administrative offices around we could plan a pharmacy in an area 87 feet by 20 feet, or 1,740 square feet on the first floor in close proximity to the outpatient department and elevators. Half our problem has been solved. Now we check as to wet walls and similar items that I discussed earlier to determine the actual cost of the renovation. When it is decided that funds are available, we prepare a tracing of the area for Mr. Archambault and ask him to "sketch in" the actual layout. Mr. Archambault how is this done?

Mr. Archambault

Layouts: First rough layouts are made by the department or by the pharmacy personnel themselves on the job. The plan is then reworked by us at Headquarters, if necessary. Then, we submit the plans to several consultants, both in and out of the Service. Some of you may have served as our consultants. Our final plan is submitted to Mr. Hogan for technical drawings.

Mr. Hogan

Equipment: The next step is to have an architect draw up the plan in detail for further review and to develop a drawing which shows available equipment, new equipment which is to be purchased, and built-in equipment. This drawing also shows the source of this equipment. That is, available equipment, new equipment to be purchased by the hospital, and built-in equipment to be provided by the contractor. This drawing also indicates other contractual obligations.

Mr. Archambault

Fixtures: Let us look at the Norfolk plan again. I might say, as an introduction, that we find the use of Schwartz, Gutman, and Sharpe & Dohme type fixtures quite suitable and appropriate for "patient area" activities such as outpatient prescription department, etc. I have heard it said that Mr. Schwartz should be credited in a large measure for getting hospital pharmacies out of the basement by his smart appearing space saving fixtures. I am inclined to agree that he has earned a spot in the history of the hospital pharmacies of the United States. I have catalogues of these firms for those of you that care for them.

Waiting Room: Again, look at each area in the Norfolk plan as Mr. Hogan suggests, you will note first—the Waiting Room:

(a) Chairs, not benches, are utilized (red plastic and chrome sides).

(b) Glass partitions, 3' 6" above floor, to dispensing area and Chief's office. The Chief Pharmacist can see when service is delayed. Also, patients can see activities in the Chief's office.

Dispensing Area:

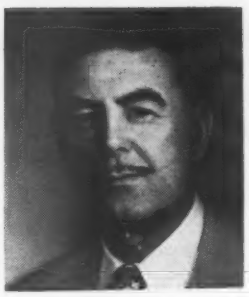
(a) Note location of telephone away from window. Patients cannot hear privileged pharmacist-physician conversations.

(b) Note space for second pharmacist during peak load.

(c) Note location of the two sinks, the biological refrigerator. (There are three points we specify for our refrigerators—automatic defroster, biological draw inserts and freezing unit, the latter for small-pox and yellow vaccine storage.)

(d) The ward basket filling area adjacent to the prepackaging shelf storage area.

(e) The 12-gallon reservoir from still. Note plans call for block-lined tin tubing through the wall—tying into the still in bulk compounding



Hogan

Archambault

area. One still furnishing two areas at this point. This effects a substantial savings in capital investment and later in labor costs.

Bulk Compounding Area:

(a) The still specifications call for a still easy to clean by pharmacy personnel, and producing pyrogen-free water. Mr. Hogan will tell you about stills and sterilizers Friday.

(b) The stainless steel tanks, a 20- and a 30-

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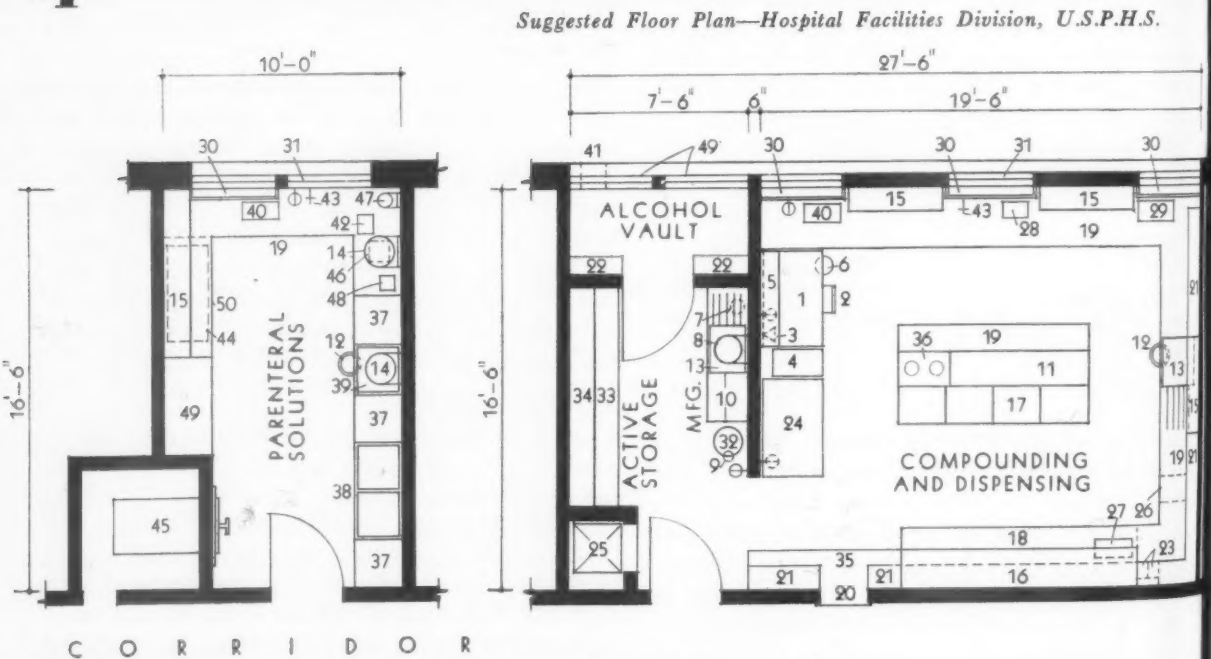
Suggested Floor Plan—Hospital Facilities Division, U.S.P.H.S.



Pharmacy for a 100 bed general hospital

1. Desk
2. Chair
3. Outlet, telephone
4. File, 4 drawer
5. Shelves, book, over desk
6. Receptacle, waste paper
7. Still, 2 gallon per hour. Required if parenteral solution room is omitted
8. Tank, glass, distilled water, 5 gallon
9. Mixer, portable, electric
10. Counter, cabinets below, shelves above
11. Rack, carboy, above counter
12. Can, sanitary waste
13. Sink, with goose neck spout and drainboard, graduate rack above, cabinets below
14. Tank, glass, distilled water, 12 gallon
15. Cabinet, adjustable shelves
16. Cabinet, drug, sectional type, with shelf above counter
17. Cabinets, drugs, sectional type
18. Counter, prescription, cabinets, sectional type drawers below
19. Counter, cabinets and drawers below
20. Window, dispensing
21. Shelves, adjustable, open, starting 18 inches above counter
22. Shelves, starting 42 inches above floor
23. File, prescription
24. Refrigerator, 16 cubic feet, with biological drawers
25. Dumbwaiter
26. Safe, narcotic, under counter
27. Scale, prescription, class A
28. Scale, prescription, heavy duty
29. Scale, counter
30. Heat outlet grill, inlet grill in base of cabinet
31. Guards, at all windows
32. Tank, mixing, 20 gallons, mounted on stand with casters
33. Shelves, 24 inches wide, 36 inches high, adjustable, open
34. Shelves, 12 inches wide, adjustable, open
35. Counter, 18 inches wide, adjustable shelves below
36. Rack, filter, above counter
37. Rack, bottle
38. Sink, two compartment, goose neck spout, cabinets below
39. Sink, with distilled water rinser, outlet hot and cold water supply, cabinets below
40. Hot plate, double element
41. Vent, at ceiling and floor
42. Scale, metric, solution
43. Outlet, gas
44. Carriage, sterilizer, under counter
45. Sterilizer, 24 x 36 x 48 inches
46. Drip pan with waste connection in counter top
47. Still, 5 gallon per hour
48. Pump, suction and pressure
49. Cabinet, storage, open, adjustable shelves
50. Counter, open below

gallon capacity free-mixing tank for preparing aluminum hydroxide gel, milk of magnesia, and other bulk liquid pharmaceuticals.

(c) The hot and cold water pipes at tanks, with water hose bibb.

(d) The 220 electrical lines for heavy duty equipment.

Storage Area:

(a) The Kardex file at door for perpetual inventory control. Experience has proven this to be the most logical spot.

(b) The toilet and wash room facilities.

(c) The narcotic, hypnotic and spirituous liquor security with a mercury explosion-proof switch.

Surgical Fluids Area: In this connection, surveys* indicate that 3 to 5 liters of saline and sterile water are needed per operation. The average 200 bed hospital uses 122 liters daily. While this unit is designed for surgical fluids, it should be noted that this area can handle the manufacture of parenterals in a civilian disaster or other emergency. Note also that this area, though small, is designed to handle traffic according to the flow of work starting at the left front end of the room. Sterilization will be done in the Operating Room in this instance. Incidentally, sterilizers should be at least 24" x 36" x 48" to allow for 2 level loads, thus saving labor costs on runs. You will note provisions have been made for plumbing for the installation of a sterilizer in this area at a future date.

Mr. Hogan will you take over and highlight some of our thinking on the small size plans, Buffalo Outpatient Clinic, Miami Outpatient Clinic, Pittsburgh Outpatient Clinic and the Outpatient Department at Staten Island, and the hospital at San Francisco?

Mr. Hogan

The plans for Buffalo, Miami and Pittsburgh are somewhat similar. Let us look at one—Buffalo. These are all outpatient clinics, not hospitals.

Outpatient Clinic Plans: The work load of the pharmacist is such that he "doubles in brass" as a pharmacist and as the administrative officer. We have some six or seven of these clinics. This may give you an idea or two for small hospital pharmacy planning—the 50 bed or less where the pharmacist will have other duties.

Note the Dutch door facing the subwaiting area which serves several areas.

Note also the rear of the Pharmacy where the pharmacist-administrative officer has his office. Here he serves the Pharmacy and is in close contact with his administrative personnel in the larger office on the left.

The last small plan—San Francisco Public Health Service Hospital—should be interesting to you. Here, again, we had to work in a given space. Let us see how well we were able to meet the requirements.

Note that we have 72' x 14' or 1,008 square feet. Also note the location of the dumbwaiter and stairway for convenience. This leads to a basement storeroom and space for additional bulk compounding. Mr. Archambault, how much space should we have here?

Mr. Archambault

San Francisco: The hospital at San Francisco is set up for 426 beds with a constructed capacity of 431 beds. We needed roughly 2,130 to 2,155 square feet. We came up with a first floor square footage of 1,008. However, our basement area is larger than this. In this way we were able to adjust for our total needs. For those of you interested in work load ratios, the figures for last March were: 3,598 prescriptions, 4,387 house orders, 108 bulk compounded items, and closing inventory of $41.30 per active bed.

This plan before you is an early one in the development of the San Francisco Pharmacy, but it will show the typical areas within the Pharmacy service. Namely, the office of the Chief, the waiting room for patients, the Dispensing Pharmacy, the Bulk Compounding Area and the Laboratory or Special Technic Area.

So much for the plans. Our function today was to show you how we work in designing pharmacies in old as well as in new buildings. We hope these plans, which you may keep, and our discussion have given you an idea or two that will be of help to you in your remodeling or building plans. It has been a pleasure for both of us to meet with you, and I am looking forward to Friday and my final session with you. Mr. Archambault, have you anything to add?

Mr. Archambault

Yes, Mr. Hogan. Possibly the group would be interested in seeing our pharmacy fixture blocks—made to a ¼ inch to 1 foot scale. I have them here for those that may wish to see them.

In closing, may I say, if either Mr. Hogan or myself can aid you at any time in designing, please feel free to write to us in Washington. We will be glad to try to help. Again, it is a pleasure for us to serve on your Institute panel.

*SHAFER, M.K.: *Sterilizers for General Hospitals* (50, 100 and 200 Beds), Division of Medical and Hospital Resources, U.S.P.H.S.

The Use of ISOPROPANOL in ICE BAGS

by MARGARET TREVIS *and* EVLYN GRAY SCOTT

SUMMARY

1. *A 10 percent v/v solution of Isopropanol 99 percent (N.F.) in water frozen in the bag in which it is to be used is more convenient than, and as efficient as, ice cubes in the same bag.*

2. *The use of this solution effects a saving in personnel time but does not require a change in nursing procedure or special instruction.*

3. *The per bag cost of the solution is negligible.*

4. *An ethyl hydrometer can be used to check the strength of the solution.*

FOR MORE than eight years St. Luke's Hospital has satisfactorily used an Isopropanol solution to replace ice in the "ice" bag. When a rubber ice bag containing a 10 percent v/v solution of Isopropanol 99 percent (N.F.) in water is frozen, the result is a pliable bag which can be used immediately and which is as efficient for approximately the same time as a similar bag filled with ice cubes. A 10 percent v/v solution was chosen because the prepared bag could be substituted for the usual ice bag and would require no change in the nursing procedure. Therefore no new techniques had to be introduced.

The bag is prepared by filling an ice bag or hot water bag with the Isopropanol solution and placing it in the freezing compartment of the refrigerator until the contents have hardened. When removed, external pressure quickly breaks the contents into small particles. The bag is then used in the regular manner by wrapping in a cloth or towel. During the hour of use the temperature inside the bag ranges from minus five degrees centigrade to plus five degrees centigrade. If a deep freeze is used to hasten freezing, time must be allowed to bring the internal temperature of the bag up to about 5 degrees centigrade. If water were to be frozen in the same manner, the result would be a rigid, non-usable bag. However, the usual ice pack is not prepared by freezing water in an ice bag. First, the ice cubes are made, then the edges smoothed by soaking in cold water, since an omission of this step results in torn bags, and finally the ice cubes are jammed into a wide-mouth ice bag. The time saving effected by decreasing the number of operations involved is obvious.

Because the solid particles of the frozen Isopropanol 10 percent v/v weigh approximately the same as a similar bag filled with ice cubes, the bag of Isopropanol solution is less bulky and gives the illusion of less weight.

At the present price of Isopropanol 99 percent, a gallon of the 10 percent solution can be made for about six cents, making the cost per pack negligible, even if used only once. However, it may be used as long as the Isopropanol remains in the container, that is, until the bag freezes solid and loses its pliability. A convenient check on the strength of the solution can be made by using an alcohol hydrometer. The Tralles scale reads 10 percent even though the actual percentage is slightly less.

MARGARET TREVIS is staff pharmacist and EVLYN GRAY SCOTT is chief pharmacist at St. Luke's Hospital, Cleveland, Ohio.

Presented at the Subsection on Pharmacy, annual meeting of the American Association for the Advancement of Science, St. Louis, Mo., December 30, 1952.

NATIONAL PHARMACY WEEK DISPLAY CONTEST

THREE AWARDS FOR

BEST DISPLAYS

BY HOSPITAL PHARMACISTS

PHARMACISTS OF AMERICA will participate in the observance of National Pharmacy Week, October 4-10, 1953. For the first time hospital pharmacists are eligible to participate in the Window Display Contest sponsored by the American Pharmaceutical Association. Photographs of displays may be entered in the contest in the name of the hospital or clinic by the hospital administrator and chief pharmacist jointly. The best exhibit will receive a plaque suitable for hanging in a prominent place in the hospital or clinic.

During the past several years a number of hospital pharmacists have observed National Pharmacy Week by arranging special displays and public relations programs during the week. Pharmacists are also being urged to take this opportunity to participate in radio and television programs informing the public of the pharmacists role in the advancement of medical care. The American Pharmaceutical Association is making available material for press releases, speeches, radio programs and television programs outlined for observance of the Week. Hospital pharmacists will receive the regular mailing being sent to all retail pharmacists in the country and literature will be distributed from the Association on request.

Open to Hospital Pharmacists

Rules for participating in the National Pharmacy Week Display Contest are outlined below:

Rules of Contest

General

1. Competition is limited to members of the American Pharmaceutical Association. In instances where a photograph is entered in the name of a retail pharmacy rather than by an individual, a member of the American Pharmaceutical Association must be associated with the firm, either as an owner or as an employee, and must have had a part in the planning of the display.
2. Each display must exhibit the window strip entitled "National Pharmacy Week, October 4-10, 1953," which the American Pharmaceutical Association will supply.
3. Displays will be judged on the basis of:
   a. Value and effectiveness of the message to the public
   b. Originality
   c. Professional character, arrangement, and details
   d. Conformity to theme
4. Displays must be entirely professional in their concept. Any emphasis on commercial implications must be avoided.
5. Photographs submitted must be 8 by 10-inch glossy prints.
6. Pharmacy Week displays that have been entered in former years are ineligible.

Hospitals and Clinics

1. General Rules 1 to 6 inclusive apply to the Hospitals and Clinics Competition, which is limited to displays or exhibits planned and installed in hospital or clinic lobbies or other hospital or clinic areas open to the general public.
2. The entry must be submitted in the name of the hospital or clinic by the hospital administrator and chief pharmacist jointly.
3. Only one photograph from each hospital or clinic may be entered.
4. Photographs of displays must be mailed to the American Pharmaceutical Association, 2215 Constitution Ave., N.W., Washington 7, D. C., on or before December 15, 1953. Entries mailed after that date will not be accepted in the competition.
5. As soon as possible after December 15, 1953, a national committee of judges will meet to select the best three exhibits in this group. The best exhibit will receive a plaque suitable for hanging in a prominent place in the hospital or clinic, and the other two will receive certificates of merit.

THE 1953 INSTITUTES

on Hospital Pharmacy

California

NINTH INSTITUTE

Sponsored by

American Society of
Hospital Pharmacists
American Hospital Association
American Pharmaceutical Association

by EDITH LOUSTALET *and* EMILY A. ALEKNA

HOSPITAL PHARMACISTS from 26 states and Canada and representing all sizes and types of institutions attended the Ninth Annual Institute sponsored by the American Hospital Association in cooperation with the A.Ph.A. and the ASHP. Meetings were held on the Loyola University Campus in Los Angeles during the week of June 15. Following the five days of lectures and entertainment, the 97 registrants agreed the Institute was a great success. Though the days were long and sometimes tedious, one's interest never lagged in the varied and interesting papers presented by outstanding speakers. It was conceded that all attending went home with "Food for Thought" whether he was from a hospital of thirty-two beds, or several thousand beds. Just meeting other pharmacists with similar problems during the informal discussions between and after lectures helped to change one's perspective in regard to many disturbing problems.

A California Welcome

Members of the Southern California Society of Hospital Pharmacists made every effort to get the Institute started with a feeling of friendly hospitality. Since our city covers such a large area and the site of the Institute, Loyola Campus, is fourteen miles from the center of the city, it was truly a major project arranging the car pool to transport our guests. Mr. Richard Slanker did an admirable job.

The Sunday gathering at Hospitality House at the Westport Beach Club with its pool and snack bar did much to make our guests feel at home, meet old friends and get acquainted with their hosts in the West.

The Monday night dinner dance held at the Beach Club was the big social event of the Institute. We had about two hundred at the dinner including Institute members, faculty, local members of the ASHP and guests. The Mexican and Western music, along with entertainment, was enjoyable. We are sure Mr. Allen Beck enjoyed his dance with the Mexican Senorita—we all did!

Lectures and Discussions

Monday morning, after registration, the Institute was opened in the comfortable and spacious library lecture hall with Mr. Walter Frazier, immediate past president of the ASHP presiding. Words of greeting were heard from Mr. Grover Bowles representing the ASHP, Dr. Robert P. Fischelis of the A.Ph.A. and Mr. Charles Towne, president of the Southern California Society. The Rev. C. S. Cassassa, president of Loyola gave the Invocation with a prayer for the success of the Institute. At this solemn moment, the importance of the ASHP and its rapid growth with its outstanding leaders left another deep emotional imprint.

During the sessions on Philosophy, Mr. John Paplow stressed the importance of the highest standards of medical care for the patient. We liked the way Dr. Fischelis told us to set standards high in the pharmacy and to let the hospital know what we are doing . . . but, he quoted, "When your work speaks for itself, don't interrupt." John J. Zugich explained what an administrator looks

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EMILY A. ALEKNA is chief pharmacist at Huntington Memorial Hospital in Pasadena, Calif.

California Institute—1953

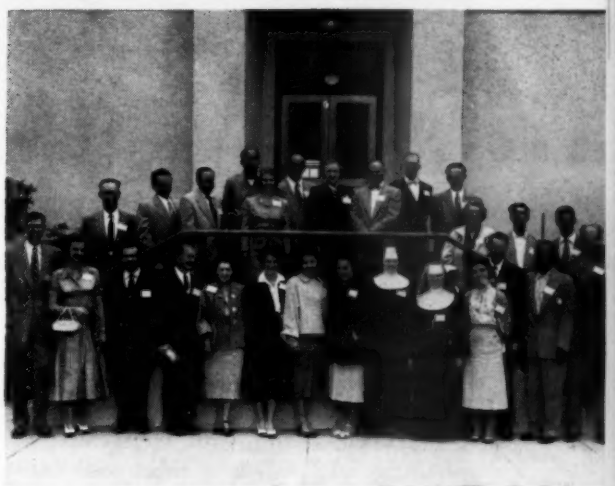
for in the pharmacy and how a pharmacist should check to determine the efficiency of service in the department.

After lunch at the campus cafeteria and a period of relaxation, the afternoon session started with Grover Bowles presiding. The subject was "Basic Philosophy and Relationships of the Hospital Pharmacy." Administrator Ralph Roumadka of Santa Monica Hospital, Educator Donald Brodie of the University of California, Nurse Nina B. Craft of Los Angeles County Hospital, Pharmacist Bowles and Physician Walter McPherson all agreed that the patient should always be the first consideration in any problem and many suggestions were made to help increase the pharmacy service to other departments.

The Tuesday morning session, following the dinner dance of the previous evening, started with a surprisingly full attendance of bright-eyed listeners. Mr. Towne presided and introduced the subject of manufacturing. We learned that Walter Frazier's black leather briefcase really did contain "pearls of wisdom," just as did the folders of the other faculty members. Mr. Frazier's "Products Readily Prepared in a Small Hospital," Mr. George Phillips' "Products Readily Prepared in Large Hospitals," and Mr. Beck's "Manufacture of Non-Pharmaceutical Products" all provided us with lists of valuable formulas for the manufacture of all types of preparations.

Dr. Orville Miller gave us interesting information on Assay and Control within the hospital, including organoleptic methods we each use every day and the more complicated measuring devices used in large scale manufacturing.

Tuesday afternoon, with Mr. Beck presiding, Mr. Slanker, Mr. Phillips and Mr. Russell Post instructed in preparation of sterile products and described useful equipment for manufacturing pharmaceuticals, packaging and labeling. A display of equipment brought from the Veterans Administration Center and the University of Southern California gave us all a chance to try out the devices and accumulate valuable pamphlets.



Hosts to the Institute were Members of the Southern California Society of Hospital Pharmacists, some of whom are shown here

The Wednesday morning session in the various Workshop groups gave us each an opportunity to discuss our problems and suggest possible solutions to others. When the reports were given Thursday morning, each panel chairman presented the conclusions of the various groups, and as usual there was much discussion from the floor.

Wednesday afternoon Charles Bertrand introduced Dr. Charles H. Hine who spoke to us on the "Emergency Treatment of Poisonings," stressing the importance of the time element and the necessity of being able to provide information and supplies at once. Dean Alvah Hall of U.S.C. explained the 2-4 pharmacy program now in effect. Paul Bjerke presented an excellent list of "Sources of Information" and I am sure each pharmacist will enlarge his library so that he, too, will have the answer to every question.

On Wednesday evening the session was open to the members of the Southern California Society. ASHP President Grover Bowles presided and the Institute faculty made up the panel for a general discussion period on the problems of the pharmacists attending the Institute.

Thursday afternoon Sister M. Junilla introduced our first speaker, Dr. Hamilton Anderson. He outlined procedures for writing scientific articles and urged us all to give thought to making more contributions. Dr. Carl Lawrence's evaluation of germicides was instructive. Dr. Ferguson, after a short introduction to "Group Dynamics," had us all contributing to the show. The portrayal of a pharmacist and an irate, complaining nurse was amusing and really "hit home" with all of us. Dr. Charles Barrett (physician) and Mr. Frazier (pharmacist) were in accord on their viewpoints of the value of an active Pharmacy and Therapeutics Committee. Paul Bjerke showed us how to create good will in his "Public and Professional Relations" lecture.

Friday, the last day of our Institute, began with as much interest as the other days, though there was some evidence of physical sagging. Dr. William Hewitt evaluated erythromycin and Magnamycin in his discussion of antibiotics. Dr. E. Kost Shelton presented one of his "case" histories and showed slides of the case and some of the mysterious actions of the adrenal and related hormones. Dr. Edward Brady took us back to our schooldays with the blackboard covered with chemical formulas showing the relationship of the chemical structure to the action of the drug.

Friday afternoon, with Mr. Walter Hitzelberger presiding, Dr. Ralph Goldman explained the types of fluid replacement needed in the body in comparison to the electrolyte balance in the cell. Dr. Thomas Haley pointed out the latest developments in the "Use of Radioisotopes." Dr. Paul Wermer told us of the "Limitations of Modern Drug Therapy" due to lack of knowledge of a disease, of all the actions of a drug, and the individual response of a patient to each drug.

Certificates Awarded

Our Institute came to a pleasant ending with a dinner at the Westport Beach Club and the awarding of certificates by Mr. Ritz E. Herrman, administrator of California Lutheran Hospital, Los Angeles, and president-elect of the A.H.A.

Sister Mary Raphael, past treasurer of the ASHP was introduced as "Sioux Cilty Sue"—a name which she acquired at the first Institute in Ann Arbor in 1946; Grover Bowles and Mr. Len Goudy, coordinator of the Institute bid us farewell; Charlie Towne, who had worked hard to make this meeting possible bid us "Hasta La Vista"—and the Institute was adjourned.

We are hoping that those who have not had the opportunity to attend an institute will realize how truly worthwhile the week was spent and will put an institute on the *must* list for the near future.

Kansas City

FIFTH INSTITUTE

Sponsored by

Catholic Hospital Association
American Pharmaceutical Association
American Society of Hospital Pharmacists

SISTER PHARMACISTS representing 18 states and Canada participated in the Fifth Annual Institute sponsored by the Catholic Hospital Association in cooperation with the A.Ph.A. and ASHP. Meetings were held in conjunction with the C.H.A.'s Convention in Kansas City, Mo., May 23-27. Carrying out the theme of the Convention, "Coordinating the Spiritual and Professional Objectives of the Catholic Hospital," discussions at the Institute meetings emphasized the place of the pharmacist in the hospital and his role both spiritually and professionally.

With this fifth Institute there seemed to be a feeling of a meeting of the minds on many problems concerned with hospital pharmacy practice. Sisters were given an opportunity to discuss freely and openly their problems within their own departments, their relationship with their administrators and other hospital personnel, and means whereby they can better serve the patients.

Again for the fifth time Mr. Oliver J. Steppig, chief pharmacist at Alexian Brothers Hospital in St. Louis along with Mr. Ray Kneifl, executive secretary of the C.H.A., contributed much toward the success of the meeting. These two have been responsible for arranging details each year with the C.H.A.'s Committee on Hospital Pharmacy Practice actually planning the program. Members of this Committee for the past year have been Sister Mary Blanche, O.S.F., *chairman,* Sacred Heart Sanitarium, Milwaukee, Wis.; Sister M. Franciscana, O.S.F., St. Joseph Hospital, Memphis, Tenn.; Sister Marian, Sister of Charity of St. Elizabeth, St. Elizabeth's Hospital, Elizabeth, N. J.; Sister M. Ancilla, S.S.J., St. Joseph's Hospital, Hamilton, Ontario, Canada; and Sister M. Berenice, S.S.M., St. Mary's Hospital, St. Louis, Mo. For the new year, Sister M. Berenice will serve as chairman and Sister Mary Rebecca, O.S.B., St. Benedict's Hospital, Ogden, Utah, is the new member replacing Sister Mary Blanche.

C.H.A. Committee on Pharmacy Practice. LEFT TO RIGHT: *Sister M. Franciscana, O.S.F.; Sister Marian, Sister of Charity of St. Elizabeth; Sister M. Ancilla, S.S.J.; Sister M. Berenice, S.S.M.; and Sister M. Blanche, O.S.F.*

C.H.A., A.PH.A. and ASHP Represented

Representatives of the national organizations were present to extend greetings including The Rt. Rev. Msgr. Charles A. Towell, president of The Catholic Hospital Association; Dr. Robert P. Fischelis, secretary of the American Pharmaceutical Association who presented the address at the opening luncheon; and Mr. Grover C. Bowles, president of the ASHP. Highlighting the discussions were the panels on "Should the Pharmacist Supervise the Central Supply and Central Sterile Supply Services?" and "The Internship Program." The role of the internship and practical experience as well as academic work in hospital pharmacy were given serious consideration with emphasis on the need for trained hospital pharmacists having a background of practical experience working under a pharmacist.

Attention was given nearly every subject of timely interest to those practicing in this specialty. Subjects covered are indicative of the trend of thinking in emphasizing the need for pharmacists who can assume their role as heads of departments. Other subjects covered included Public Relations; Staffing Pharmacies in Small Hospitals; Professional and Administrative Policies Governing the Pharmacy Services; Management Guide or Manual; Accreditation of Hospitals; Professional Developments—Pharmaceutical Sorbitans; Control of Drugs Under the Federal Food, Drug and Cosmetic Act; Pharmacology of New Drugs; Professional Problems in Pharmacy Practice; The Durham-Humphrey Act; and Moral Responsibility of the Pharmacist.

Resolutions

Resolutions passed during the business session of the Institute are as follows:

Be it resolved that thanks be extended to Dr. Robert P. Fischelis, secretary of the American Pharmaceutical Association, who brought greetings from this Association; to Mr. Grover Bowles, president of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS; to Dean Dittrick of the College of Pharmacy of the University of Kansas City, and others who extended greetings and hospitality to the Institute.

Be it resolved that a vote of thanks be extended to all program participants, whose contributions to the Institute sessions were invaluable.

Whereas hospital administration is not fully cognizant of the problem incident to compliance with the criteria set forth in newly revised *Minimum Standard for Pharmacies in Hospitals,* and

Whereas hospital administration's approval and support is essential in developing pharmacy departments to meet these standards,

Be it resolved that at a future sectional meeting or workshop on hospital administration, the Catholic Hospital Association arrange for a presentation of these recent developments by leading experts in this field.

Whereas it is generally agreed that the variation in pricing schedules in hospital pharmacy is the cause of unfavorable criticism by those responsible for payment of accounts,

Be it resolved that a comprehensive study be undertaken to determine the factors that should be considered in arriving at a fair price to be charged for medications in hospitals.

Students Visit Pharmacy Department at City Hospital, Akron, Ohio

Pharmacy Students Visit 24 Hours with AKRON AREA

Society of Hospital Pharmacists

by RUSSELL LOVELL

"Why are so many 'top-notch' positions in hospital pharmacy remaining vacant?" This was one of the pertinent questions considered in an informal discussion by members of the Ohio Society of Hospital Pharmacists meeting in Cleveland in 1952.

Another member commented that among possible candidates, the students of our pharmacy colleges, there was a lack of understanding regarding our field.

It was agreed that the various colleges provide their students with information about various fields of pharmacy. Inspection trips are made to pharmaceutical manufacturers. Many colleges have model retail pharmacies. Numbers of students have had experience working in drugstores. Some colleges provide contact with hospital pharmacy, and a few have courses in hospital pharmacy. However, it was believed that pharmacy students, in many instances, are not aware of the potentials existing in the hospitals.

Later, in a meeting of the Akron Area Society of Hospital Pharmacists, projects were being discussed. The idea previously planted at the time of the Cleveland meeting lead to the question: "Why not invite pharmacy students to visit our hospital pharmacies and see for themselves the opportunities there?"

The members felt that such a project would help disseminate knowledge of hospital pharmacy as a profession among students of our area colleges and that the enthusiasm of our members might tend to be infectious among the visitors.

The several months of planning that followed were keyed to provide as wide a picture as possible of the many and varied procedures, opportunities, and interests existing in this phase of pharmacy. The members of the area group (comprising a large portion of Eastern Ohio) agreed that Akron, with three hospitals conveniently and centrally located, should be the site of the program.

Detailed plans were submitted to the administrators of our members' hospitals. All offered cooperation. Especially Miss Eva P. Craig, Peoples Hospital; Mr. Roger L. Sherman, Children's Hospital; and Mr. Worth L. Howard, The City Hospital of Akron, were more than cooperative in offering all available facilities and assistance for execution of the project.

Plans were then submitted to Deans Muldoon, Reif, Christensen, and Smith of the Colleges of

RUSSELL LOVELL is chief pharmacist at The City Hospital of Akron, Akron, Ohio, and is presently serving as president of the Ohio Society of Hospital Pharmacists.

Students see parenteral solutions dispensed

Pharmacy of the Universities of Duquesne, Pittsburgh, Ohio State, and Ohio Northern. The Deans approved the plans for the project and accepted the invitations for their students to participate.

The number of visiting students would necessarily be limited by facilities available. The project committee also felt that the number must be kept small enough to maintain a friendly and intimate atmosphere.

The tentative figure set at 8 to 10 was revised upwards to 18 when interested students of Duquesne, Pittsburgh, and Ohio State responded in larger numbers than anticipated. Three places were reserved for faculty members if the colleges so desired.

Thus five interested juniors were selected by their colleges to participate. Mr. J. D. McEvilla, a member of the faculty of the College of Pharmacy, The University of Pittsburgh, accompanied his students. Duquesne asked to send a sixth student. Thus sixteen students and Mr. McEvilla arrived on the planned day—Tuesday, April 21.

Students from Ohio State were Jean Simon, Ilga Lazdins, Harry Shaver, Arthur Holdford, and Yale Gressel. Janie Ebracco, Kathleen Smith, Richard Hepps, Edgar Duncan, James Mitchell, and Robert Kowalski came from Duquesne. From Pitt the students participating were Mary Lou Brown, Donald Vrabec, Samuel Arlow, Edward Gilmore, and Vincent Venturella.

Proceedings began with a get-acquainted dinner for the visitors and hospital pharmacists of Akron at The City Hospital of Akron, Tuesday, at 6 P.M. Following the dinner, the Area Society met.

The program began with a brief explanation of the project by Mrs. Elnorah Drury of Alliance City Hospital. Mrs. Mary Morgan, Children's Hospital of Akron, spoke on the organizational history of the national, state, and area levels of the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Hospital organization was explained by William Slabodnick, pharmacist and assistant administrator of Massillon City Hospital. A film, "House of Mercy," depicting hospital activity was shown. Refreshments and informal discussion completed the meeting.

The visitors spent the night at The City Hospital of Akron and began Wednesday's activities with breakfast in the nurses' cafeteria. At 8:30 A.M. the students were divided into three groups, one group being taken to Children's Hospital; one to Peoples Hospital; and one remaining at City for the first inspection period.

Pharmacists Willa Beedle of Sharon General Hospital, Jeanne Sicafoose of Aultman Hospital, Leon Bailey of Youngstown City Hospital, William Slabodnick of Massillon City Hospital, and Jack Hovis of Salem City Hospital acted as tour-guides for the groups.

At 10:30 A.M. the groups shifted from the first hospital to the next. After lunch, the groups again shifted to the third hospital on their schedule. Thus, each group of students spent one and one-half hours in each of the three hospital pharmacies.

In addition to viewing all routine activities at the time of their particular visit and inspecting all facilities of the pharmacies, the students were shown special demonstrations.

Children's Hospital demonstrated the preparation of parenteral solutions and the filling of orders for the patients in the hospital. Peoples Hospital showed the procedure for handling stock or basket orders, in addition to depicting the pharmacist in the role of instructor to student nurses. Manufacturing processes used and narcotic handling and control were also shown.

City Hospital of Akron had explanations of formulary or standardization procedure, filling of outpatient clinic prescriptions, purchasing routine, and preparation of narcotic solutions.

Staff pharmacists and guides were on hand at all times answering questions and explaining the various facilities and procedures.

Each pharmacy also displayed all items manufactured or compounded in the pharmacy, printed or mimeographed forms used, and records routinely maintained.

At 4 P.M. the group met in the library of Peoples Hospital for coffee with Miss Bess Graham, assistant administrator, and Miss Patricia Donley, Directress of Nursing Service. At 6 P.M. dinner for area hospital pharmacists and the visitors at the Women's City Club concluded the 24 hour visit to hospital pharmacy.

The Society was gratified by the interest and enthusiasm shown by the visitors. The members were unanimous in feeling that the entire group could not have been more friendly or sympathetic to our efforts.

"I didn't have any idea that there were so many phases to pharmacy in the hospital . . . ."

"Hospital pharmacy as you have shown it to us seems to me to offer the widest of opportunities for the practice of actual pharmacy . . . ."

"The enthusiasm of your members amazes me . . . ."

From the many comments of the students, these three seemed to summarize confirmation of the Society's collective impression that the project had been successful.

As the visitors, waving friendly goodbyes, drove away, a member was heard to say, "We must do this again in 1954."

THERAPEUTIC TRENDS

New trends in medicine and pharmacy include PLACENTAL SERUM IN ARTHRITIS — PVP — BRISTAMIN — TERIDAX — BLIND PLACEBOS — PHENYLINDANEDIONE — PARENTERAL TRYPSIN

Edited by LEO F. GODLEY

Placental Serum In Rheumatoid Arthritis

Placental serum has been used in the treatment of rheumatoid arthritis as reported in *Arch. Int. Med.* 91:315 (March) 1953. Spielberg working at Jewish Hospital in Brooklyn treated a series of 15 women with active rheumatoid arthritis. The effective dosage as reported was 30 cc. intravenously daily for 14 days, then 3 times weekly for 2 weeks, then twice a week for 3 weeks, and concluding with one dose weekly for 1 to 3 weeks. Ten patients experienced relief for six months with the above treatment. Placebos did not produce significant improvement when substituted for placental serum.

Levy, working at Morrisania City Hospital in New York City reported a series of 45 cases of rheumatoid arthritis treated with placental serum in *Med. Clin. N. Am.* 37:805 (May) 1953. He noted that while results were not as dramatic as with ACTH and Cortisone, rebound phenomena were not encountered with placental serum therapy. Another advantage as pointed out by Levy is that the serum can be given for a long time with constant results.

No toxic or untoward effects were reported except an occasional local reaction. It is pointed out that the placental serum would be contraindicated in Rh negative individuals.

PVP As A Plasma Expander

PVP is a macromolecular synthetic plastic substance that exerts osmotic and hydrophilic properties similar to the proteins of blood plasma. It is a stable compound and is nontoxic and nonantigenic. This plastic compound is prepared by controlled polymerization of vinylpyrrolidone. It is a whitish amorphous powder which is soluble in water and has an average molecular weight of 40,000.

This study was done by Singleton of the Department of Surgery of the University of Texas and published in *Texas Report on Biol. and Med.* 11:138 (Spring) 1953. There were 52 cases of impending shock treated with apparent benefit in 44 cases. The solution of PVP used was furnished by Schenley Laboratories. This solution was 3.5 percent PVP with a *p*H of 5.7-7; and had a viscosity of 2 to 3 times that of water. The colloid osmotic pressure is 300-500 mm. of water. Solutions of PVP may be sterilized, stored, and administered without special precautions. Following administration of the solution, there is no interference with crossmatching, blood formation, blood coagulation or blood oxygen carrying power. The sedimentation rate, however, is usually increased and the urine often shows positive albumin. The fate of PVP in the body has not been adequately determined; 20-50 percent (representing the lower molecular weight portion) is eliminated by the kidneys in three days.

The Germans reportedly used PVP in 500,000 cases in World War II. Ravdin, Clark, and Lundy, in this country, have reported upon its use.

Bristamin

Bristamin is the dihydrogen citrate salt of phenyltoloxamine (2-benzylphenyl *beta*-dimethylaminoethyl ether). It is related to Benadryl and Decapryn. An excellent response was experienced by 62 percent of patients in this study with allergic manifestations. It was preferred by many patients to other remedies because of less side effects and/or because it gave as much as or more relief.

Beginning dose was 25 mg. three or four times daily with later adjustment to individual response. Some patients experienced greater relief from 50 mg. doses without an increase in side effects. This report is published in *J. Allergy* 24:261 (May) 1953. Bristamin is a product of Bristol Laboratories.

Teridax

Teridax is *alpha*-ethyl *beta*-(2,4,6, triiodo-3-hydroxyhenyl) propionic acid. It is a white odorless,

crystalline powder and contains 66.5 percent iodine. According to the report by Shapiro in *Radiology* 60:687 (May) 1953, this drug is superior as a diagnostic aid to both Priodax and Telepaque. Priodax gives a high incidence of side effects, notably diarrhea; and Telepaque has the disadvantage of being excreted through the bowel and also due to its high opacity obscures stones.

Teridax is excreted principally by the kidneys. Maximal concentration in the gall bladder is reached in 8 to 12 hours. Animal studies have demonstrated no toxic effects to blood and vital organs.

In a series of 225 patients, the gallbladder was visualized in 81.8 percent on the first examination following the administration of Teridax. The density of the gallbladder shadow is intermediate between that produced by Priodax and Telepaque. Side effects (nausea, vomiting, and diarrhea, etc.) are less pronounced than with Priodax but are similar to those caused by Telepaque. Teridax is manufactured by Schering Corporation.

Blind Placebos In Drug Evaluation

Hailman of The Upjohn Company published studies in the *J. Am. Med. Assoc.* 151:1430 (April 18) 1953 which show the necessity of a placebo in the evaluation of toxicity and therapeutic qualities of a drug. The tendency is toward the use of a "blind" placebo wherein the investigator as well as the patient is not aware of the content of the medication dose. This method tends to make the investigator's "watch" more acute in addition to ruling out psychological factors of the physician as well the patient.

Phenylindanedione

Blaustein *et al* reported a study of 400 cases wherein phenylindanedione was employed as an anticoagulant. The report appeared in *Am. J. Med.* 14:704 (June) 1953. Types of cases treated were acute coronary thrombosis, chronic myocardial insufficiency and thrombophlebitis.

The initial dose was from 200-300 mg. depending upon the weight of the patient. The maintenance dose was determined by prothrombin time; however, 65 mg. was the average maintenance dose employed by these investigators. The average time for the attainment of the desired prothrombin time was 32 hours; and 48 hours was required for the return to normal. There was one case of diarrhea and two cases of hematuria reported as side effects in this study. Fifteen patients did not respond to the drug; but it was shown that these patients had a resistance to all prothrombopenic drugs. There were also three cases of minor hemorrhage observed.

Phenylindanedione is antagonized by intravenously administered vitamin K and according to these investigators, it acts more quickly than dicumarol and is not cumulative. It is rapidly excreted; and often the urine is colored orange which is characteristic of phenylindanedione in alkaline solution.

The material used in this study was furnished by Walker Laboratories under the tradename "Hedulin."

Parenteral Trypsin

The proteolytic enzyme, trypsin, has been used locally for enzymatic debridement of wounds and other inflamed areas. Innerfield *et al* present a study of its parenteral application in the *J. Am. Med. Assoc.* 152:597 (June 13) 1953. This study includes observations based on 6,456 parenteral doses of trypsin in 538 patients.

From animal experimentation, it was assumed that intravenously administered trypsin would materially affect the fibrin of intravascular thrombin in humans. Further, these experiments supported the thesis that, parenterally, trypsin suppresses acute inflammation of bacterial, viral, allergic and chemical origin.

The usual dose consisted of 10 mg. of trypsin in 100 cc. of normal saline given intravenously twice a day for 5 to 7 days. The rate of administration should not exceed 30 drops per minute. With this dosage and rate of administration there is little danger of endophlebitis at the site of infusion; but there is occasionally experienced a transient facial flushing and a sense of warmth. It is apparently possible to alter the blood clotting mechanism in this therapy and a close watch is maintained on clotting time. Other dangers that were noted previously on high dosages were not experienced with therapy at this dosage level. Sensitization is rare but should be watched for especially before beginning second courses of treatment.

Some of the disease conditions treated with varying degrees of success are as follows: rheumatoid arthritis, thrombophlebitis, thromboangiitis obliterans, coronary thrombosis, a typical virus pneumonia, empyema, glaucoma, herpes zoster, ulcerative colitis, bronchitis, bronchiectasis, lymphogranuloma venereum, etc.

Administered intravenously, trypsin is expected to accomplish the following: (1) hydrolysis of fibrin; (2) decrease viscosity of encapsulated fluid; (3) aid phagocytosis; (4) liquefy purulent debris and viscid mucus; (5) reverse acute inflammatory processes.

The trypsin used in this study was furnished by Armour Laboratories and The National Drug Company.

TIMELY DRUGS

Ambodryl Hydrochloride

. . . (bromodiphenhydramine hydrochloride) is a new antihistaminic agent for use in treating a wide variety of allergies, including hay fever, allergic rhinitis, asthma, urticaria, eczema and migraine. Clinical tests indicate that Ambodryl is well tolerated by patients, with a minimum of the side effects encountered with antihistamine preparations. Supplied by Parke, Davis and Company, Ambodryl is available in Kapseal form, each Kapseal containing 25 mg. of Ambodryl hydrochloride.

Aveeno Skin Cleanser

. . . for use in cases in which the patient is sensitive to soap, is supplied by E. Fougera and Co. The product is especially useful in such conditions as poison ivy, allergic dermatitis, contact dermatitis, sunburn, after-bath itch, industrial dermatoses and eczemas, when the skin is irritated and requires mild soothing cleansing.

Bontril Tablets

. . . for reducing appetite, is a combination of dextro-amphetamine sulfate, 5 mg.; methylcellulose, 350 mg.; and butababarbital sodium, 10 mg. The recommended dosage is one or two tablets 30 to 60 minutes before breakfast and lunch, and at 4 p.m. (to avoid insomnia), with a full glass of water. Amphetamines should be used with caution in the presence of hypertension and in cases of coronary or cardiovascular disease. Bontril Tablets are supplied by G. W. Carnick Co., Newark, N. J.

Chlor-Trimeton with Sodium Pentobarbital

. . . designed to produce the antihistaminic action along with added sedation, is available from Schering Corporation. The combination is indicated when prolonged antihistaminic action and mild sedation from a single tablet is required for symptomatic relief from manifestations of allergic states, such as hay fever, vasomotor rhinitis, urticaria, allergic eczema, angioedema, serum sickness and drug sensitivity. Frequently, benefit may be apparent from its use in atopic dermatitis, contact dermatitis (including poisoning by ivy or oak) insect bites, migraine, neurodermatitis, pruritus ani and vulvae, and generalized pruritus. The addition of sodium pentobarbital has been found to be useful in affording a good night's rest, especially in those patients with pruritic conditions including chronic urticaria, allergic eczema and allergic or contact dermatitis, as well as hay fever and chronic allergic rhinitis. Chlor-Trimeton Maleate 8 mg. Repeat Action Tablets with Sodium Pentobarbital 50 mg. are recommended for adults only in dosages of one tablet at bedtime or every 8 to 10 hours during the day.

Digitaline Nativelle IM

. . . has been introduced by E. Fougera and Co., Inc. Although Digitaline Nativelle has been available in oral and intravenous form for a number of years, the intra-muscular injection is of particular advantage in treating those patients who are comatose, nauseated, uncooperative, or those whose surgical condition might preclude the use of the oral route. The intramuscular form has been made possible by a special solvent that makes unnecessary the high alcoholic content of present digitoxin parental solutions which often give rise to pain and irritation upon injection. The new solvent, which is a combination of polyethylene glycol 300, 39 percent; benzyl alcohol, 4 percent; ethyl alcohol, 4 percent; distilled water, 19 percent; and glycerin, 44 percent, was found nontoxic and non irritating. According to a report in the *American Heart Journal* 44:787 (1952), the the new injectible form was found "safe and effective in initiation and maintenance of digitalization and a satisfactory therapeutic effect was obtained with minimum local and no desirable side effects."

Digitaline Nativelle Intramuscular is supplied in 1 and 2 cc. ampuls, in boxes of 6 and 50. Each cc. provides 0.2 mg. of the oral preparation, providing an easy dose for dose switchover to oral medication.

Dibenzyline

. . . for the treatment of peripheral vascular disorders and hypertension due to pheochromocytoma, is available from Smith, Kline and French Laboratories. Each capsule contains 10 mg. of Dibenzyline (phenoxybenzamine hydrochloride).

Dimethylane

. . . indicated as a relaxant in muscular spasm and tension, is available in 0.25 gram tablets from The National Drug Company. The recommended dosage of Dimethylane is two capsules after meals and at bedtime. It does not cause sedation or hypnosis. Chemically, Dimethylane is 2,2-diisopropyl-4-methanol-1,3-dioxolane.

Hydrocortone

. . . is now available in a new dosage form of 5 mg. tablets. These permit the establishment of more accurate maintenance doses when smaller doses are prescribed than can be conveniently given with the scored 20 mg. tablets. Hydrocortone is a product of Merck and Company.

Distreptocin Sulfate Ampuls

. . . is a mixture of equal parts of streptomycin and dihydrostreptomycin base, as the sulfates. It appears to have a distinct advantage over either streptomycin or dihydrostreptomycin alone because the incidence of damage to the vestibular or auditory branch of the eighth cranial nerve is much less. As with streptomycin and dihydrostreptomycin, vestibular and auditory dysfunctions bear a relationship to dosage and duration of treatment; sufficiently large doses of Distreptocin given over a prolonged period may produce the nerve damage mentioned. Distreptocin Sulfate Ampules are available from Eli Lilly and Company. The drug is packaged in the dry form and should be reconstituted for use with Water for Injection, U. S.P., a sterile isotonic saline solution, or some other suitable solvent.

Indications for using Distreptocin are identical to those of either of the individual components and include the following: urinary tract infections due to gram-negative organisms sensitive to streptomycin; gonorrhea which does not respond to penicillin therapy; tularemia; *Hemophilus influenzae*; meningitis and pulmonary infections; wound infections due to streptomycin-senstive organisms (applied topically); granuloma iguinale; chancroid infections due to *Hemophilus ducreyi* that do not respond to sulfonamide therapy and tuberculosis (in combination with PAS).

Kectil

. . . is Bristol Laboratories' combination of pencillin, streptomycin, and sulfaguanidine with bismuth, kaolin and pectin. Kectil is indicated for the comprehensive treatment of specific and non-specific diarrheas including bacillary dysentery, paradysentery, salmonellosis, diarrhea of the newborn and so-called "summer-diarrhea." Clinical tests show that it is also effective in controlling the diarrhea associated with chronic ulcerative colitis. The recommended dosage for adults is 2 to 3 tablespoonfuls 4 times a day; for children, 1 to 2 tablespoonfuls 4 times a day; and for infants; 2 to 3 teaspoonfuls 4 times a day. Kectil is supplied in bottles containing sufficient powder to prepare 4 fluid ounces of a pleasant tasting suspension at time of dispensing by the addition of water. After reconstitution, the preparation will be stable for seven days in refrigeration, and patients are instructed to discard any remaining portion after that period of time.

Monichol

. . . is a new preparation for the treatment of those conditions characterized by hypercholesteremia of the idiopathic or familial type. It is also of value in disturbances of the cardiovascular system associated with hypercholesteremia. Each teaspoonful (5 cc.) contains polysorbate 80, 500 mg.; choline dihydrogen citrate, 500 mg.; and inositol, 250 mg. The recommended dosage of Monichol is one teaspoonful four times daily or two teaspoonfuls twice daily; or as directed by the physician. It should not be administered concomitantly with mineral oil preparations. Monichol is supplied in 12 ounce bottles by Ives-Cameron Company, Inc., New York, N.Y.

Nabadial

. . . a steroid hormone having mild androgenic effect, has been introduced by George A. Breon and Company. Nabadial is methylandrostenediol in a buffered aqueous suspension containing 50 mg. per cc. in 10 cc. multidose vials. It is indicated for the symptomatic relief of certain forms of breast cancer, menopause, dysmenorrhea and other menstrual dysfunctions. It is also effective in treating malnutrition and physical exhaustion accompanying prolonged illnesses or convalescence. The average dosage is 0.5 to 1.0 cc. injected intramuscularly two to five times a week, although the individual patient's condition will determine the precise dosage.

Neohydrin

. . . the mercurial diuretic used in the management of cardiac and nephrotic edema and ascites of liver disease, has been accepted by the A.M.A. Council on Pharmacy and Chemistry. Neohydrin is a product of Lakeside Laboratories.

Prantal Methylsulfate Tablets with Phenobarbital

. . . provides an anticholinergic agent with sedation. The combination is indicated in peptic ulcer and other conditions where it is desirable to reduce gastric acidity and motility of the stomach. The concomitant use of phenobarbital provides mild sedation, reduces apprehension, and relaxes tension, symptoms frequently encountered in the peptic ulcer patient. The average dose is one tablet every 4 to 6 hours. Prantal methylsulfate 100 mg. combined with phenobarbital 16 mg. is available as coated tablets from Schering Corporation.

Primaquine

. . . a new synthetic antimalarial, is available from Winthrop-Stearns. It is said to have sufficiently low toxicity to warrant large scale use against the exoerythrocytic (tissue) forms of *Plasmodium vivax*. Primaquine is used only for the specific purpose of preventing the development of the erythrocytic forms which are responsible for relapses. Clinical studies of large numbers of cases of Korean vivax malaria have shown that it prevented relapses in virtually all cases. Patients suffering from an acute attack of vivax malaria first receive a course of Aralen to terminate the paroxysms. The dosage for Primaquine diphosphate is one tablet (equivalent to 15 mg. of the base) daily for fourteen days administered under strict medical supervision.

New Varidase Jelly

. . . which is a combination of streptokinase and streptodornase used to dissolve clotted blood and liquefy thick pus and fibrinous accumulations, is now available in a new form. A separate vial of Varidase is supplied with a 15 cc. jar of water-soluble jelly enabling the physician to apply Varidase to the wound with a dry bandage. This means that it can now be applied in wet dressing form and can therefore be used on ambulatory patients without inconvenience.

Varidase, available from Lederle Laboratories, was originally placed on the market in 1951. It has been found useful in surgery and in skin grafting by aiding in the removal of dead tissue and hastening tissue regrowth. Furthermore, it clears the way for treatment with aureomycin and other antibiotics.

Notes and Suggestions

PRACTICAL FORMULAS

FOR USE IN HOSPITALS

The following formulas were selected from the newly revised *Formulary* of the Walter Reed Army Hospital, Washington, D. C. where Captain Jack W. McNamara is chief pharmacist.

ALUMINUM PASTE

Aluminum Powder	20 Gm.
Olive Oil	20 Gm.
White Petrolatum, to make	100 Gm.

This paste is of the type often employed as a protective agent applied to the perimeter of a colostomy, or similar surgical orifice. The aluminum powder and olive oil are first triturated together and then the mixture is incorporated with the white petrolatum. A heavier paste is obtained if zinc oxide ointment is used in place of the white petrolatum.

BUROW'S 1-2-3 PASTE

Burow's Solution	10 Gm.
Wool Fat	20 Gm.
Zinc Oxide Paste	30 Gm.

Burow's 1-2-3 Paste is an astringent, soothing paste. Phenol and/or menthol is often incorporated in it in a concentration of approximately 1 percent if pruritus is present.

SILICONE OINTMENT

Silicone 200	30 Gm.
Hydrocarbon Base, to make	100 Gm.

Silicone serves as a protective agent and may be used in a vehicle such as petrolatum, white ointment, or a vanishing cream base. Silicone 200 fluid is available from the Dow Corning Corporation of Midland, Michigan in one pound and larger quantities.

CHERRY SYRUP

Cherry Concentrate, Natural	3.0 cc.
Citric Acid	0.5 Gm.
Benzoic Acid	0.1 Gm.
Syrup, to make	100.0 cc.

This is an excellent vehicle, especially for salty or bitter drugs.

COUGH SEDATIVE

Codeine Sulfate	0.10 Gm.
Menthol	0.02 Gm.
Citric Acid	1.00 Gm.
Sodium Citrate	1.50 cc.
Ipecac Fluidextract	0.50 cc.
Alcohol	1.00 cc.
Glycerin	25.00 cc.
Sodium Benzoate	0.10 Gm.
Flavored Syrup, to make	100.00 cc.

Each 4 cc. contains 4 mg. codeine sulfate. This is an excellent cough preparation for children. The usual dose for children is from 4 to 8 cc.

RESORCINOL MONOACETATE SCALP LOTION

Resorcinol Monoacetate	4.0 cc.
Mercury Bichloride	0.1 Gm.
Glycerin	3.0 cc.
Alcohol, to make	100.0 cc.

Resorcinol monoacetate acts as an antipruritic, antiseptic and stimulant to the scalp and skin. It has a milder and more sustained stimulating action on epidermal tissue than resorcinol and is less likely to change the "feel" of, or to discolor, the hair. It is used as an adjuvant in the treatment of acne, sycosis vulgaris, alopecia and seborrhea.

ZIRCONIUM CARBONATE LOTION

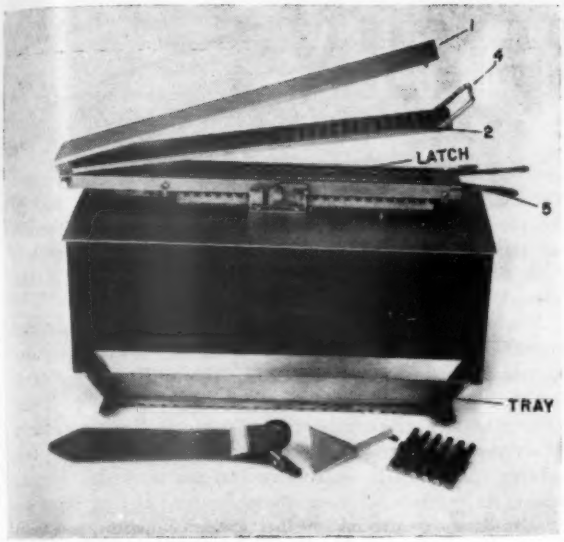
Zirconium Carbonate	20.0 Gm.
Zinc Oxide	10.0 Gm.
Bentonite	2.5 Gm.
Glycerin	10.0 cc.
Distilled Water, to make	100.0 cc.

Zirconium carbonate is an excellent antipruritic and bland protective of value in a wide variety of skin disorders. It is also of value in the treatment of poison ivy dermatitis if applied a few hours after exposure.

BISMUTH-PAREGORIC MIXTURE

Bismuth Subcarbonate	7.50 Gm.
Pectin	1.50 Gm.
Sodium Citrate	0.75 Gm.
Cinnamon Oil	0.10 cc.
Alcohol	2.00 cc.
Syrup	10.00 cc.
Paregoric	50.00 cc.
Distilled Water, to make	100.00 cc.

Each 4 cc. contains 0.3 Gm. bismuth subcarbonate and 2 cc. paregoric. The adult dose is 4 to 8 cc.

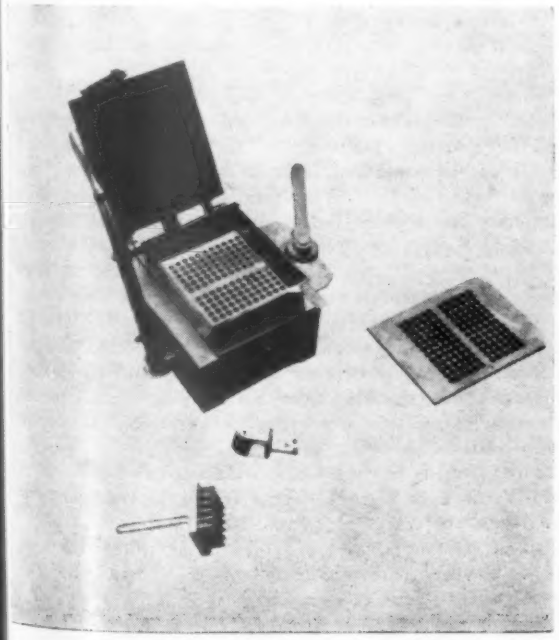


Universal Model Capsule Filling Machine

CAPSULE FILLING MACHINE

Several models of capsule filling machines are available from the Pharmaceutical and Chemical Industrial Supply Corporation, Division of American Roland Corporation, 16 Hudson Street, New York 13, New York.

The Universal Model is a small unit for moderate production requirements. It has a filling plate of four parallel rows, each row having openings for 24 capsules. Each row is machined for a different size capsule so that four size capsules can be filled on the machine (capsules No. 0, 1, 2, 3). The daily production of this machine is 2000 capsules.



Model 300 Capsule Filling Machine

Model 300 is built for production of 2000 capsules per hour, but of one size capsule only. The unit can be obtained for capsules No. 00, 0, 1, 2, 3, and 4. The number of capsules filled per operation is as follows: 96 of number 00 or 0 capsules; 144 of number 1 or 2 capsules; etc.

Also available but not shown here is a Model 200 machine and variations of it. The Model 200 is similar to Model 300 but is not of as heavy construction, and its capacity is only 1000 capsules per hour. There is also a variation of this model obtainable which handles three different size capsules. The units are all mounted on one base. Further information including price quotations is available from the company.

ADHESIVE TAPE REMOVER

Carbon Tetrachloride	80 cc.
Mineral Oil, to make	100 cc.

The above formula will be found useful as a non-inflammable adhesive tape remover.

PODOPHYLLIN BOOKLET

A new 28-page booklet entitled "Some New Applications of Podophyllin and Its Derivatives" is available from Research Division of S. B. Penick and Company, 50 Church Street, New York City 8.

SUNSCREEN LOTION

Isobutyl *para*-aminobenzoate	5 Gm.
Alcohol	60 cc.
Glycerin	10 cc.
Water, to make	100 cc.

A sunscreen lotion may be prepared according to the above formula. The addition of 2 percent of tannic acid is said to stimulate suntan and to increase the sunburn preventive action of the lotion. This formula appeared in *Drug and Cosmetic Ind.* 72:825 (June) 1953.

DIHYDROSTREPTOMYCIN SYRUP

Dihydrostreptomycin	3.0 Gm.
Syrup of Cherry	30.0 cc.
Distilled Water, to make	60.0 cc.

This formula for oral dihydrostreptomycin has been submitted by Frank J. Steele, chief pharmacist, Greenwich Hospital, Greenwich, Conn.

COUMARIN WITHDRAWN FROM FOOD MARKET

Producers of coumarin have voluntarily withdrawn this chemical from the food market where it has been used for seventy years as a flavoring material. This action was taken after manufacturers found evidence that coumarin is damaging to the liver of animals. Although no human illness has been traced to the flavoring agent the withdrawal of coumarin is regarded as a precaution in the interest of public safety.

BOOK REVIEWS

THE OFFICIAL PREPARATIONS OF PHARMACY. Second Edition, 1953. By C. O. Lee. 9" x 6", 544 pages. Published by the C. V. Mosby Company, St. Louis, Mo. Price $5.50.

This is the second edition of a text which first appeared in 1949. It has been revised to conform to the U.S.P. XIV and the N.F. IX. As the author states in the Preface, "the text material is confined to the definition, description, and manufacture of the official pharmaceutical preparations." The greater portion of the text is devoted to a discussion and explanation of the more important pharmaceutical, chemical and physical problems relating to the compounding and handling of the preparations official in the U.S.P. and the N.F.

The book is comprised of twenty-five chapters, each of which deals with either a single class or several closely related classes of pharmaceutical preparations. Each of the larger classes of preparations, such as Solutions, Elixirs, Tinctures, Syrups, etc., make up an entire chapter. Smaller and less important classes are grouped together to form single chapters. For example, Pastes, Plasters, Cataplasms, and Petroxolins are discussed in one chapter, as are Powders, Cachets, and Capsules in another.

The classes are taken up in the order of their complexity, starting with Waters, and progressing through Solutions, Syrups, Elixirs, Emulsions, Ointments, and finally to Tablets, to mention only a few. A number of unclassifiable but important preparations are considered in the final chapter under "Miscellaneous Preparations." These include such items as Glycerinated Gelatin, Liquefied Phenol, Medicinal Soft Soap, Prepared Neocalamine, Rectified Turpentine Oil, etc.

Discussion of each class includes, first, a definition or description of the class, general methods of preparation, and, where applicable, actions and uses of preparations in the class. Next, all the official preparations of the class are alphabetically listed in tabular form, giving the English and Latin titles and synonyn (if any), and a very brief definition or description and chief action of the preparation. The U.S.P. items are listed first, followed by the N.F. items. Following the tabular presentation, each preparation is reviewed individually, describing the problems involved in its manufacture, handling, or storage. Here, also, pertinent comments emphasizing notable points of interest about each preparation are made. The author's broad and intimate knowledge of pharmacy acquired through many years of pharmacy teaching and from service on the revision committees of both the *United States Pharmacopeia* and *National Formulary*, has enabled him to present many interesting side lights in his discussion of the various official preparations and their classes.

This textbook is particularly good in its discussion of many of the details of procedures. The author has made special effort to explain in clear and simplified terms the "whys" underlying the basic principles involved in preparing and handling official products. Numerous chemical equations which illustrate the reactions involved in the preparation of various official items appear where applicable. Frequent references are made to procedures, tests, and standards official in the *Pharmacopeia* and *National Formulary*. The quality of the printing and of the photographs, which are amply interspersed throughout the text, is excellent. The book is indexed completely even listing the trade names under which many of the official products are commercially available.

The Official Preparations of Pharmacy was written primarily for use as a textbook in an introductory course in pharmaceutical preparations; therefore, no attempt has been made to discuss in minute detail any one subject or any given aspect of a subject. However, there is a considerable amount of basic information in this volume, particularly in relation to some of the reasons why certain procedures are prescribed for the preparation or handling of official products, which would make it a valuable addition to the hospital pharmacist's reference shelf.

WARREN E. MCCONNELL

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University of Michigan
Ann Arbor, Michigan

THIS HOSPITAL BUSINESS OF OURS. 1952. By Raymond P. Sloan. 8½" x 5½", 331 pages. Published by G. P. Putnam's Sons, New York 16, New York. Price $4.50.

If you have an embryo hospital pharmacist within earshot, by all means recommend that he read Raymond P. Sloan's *This Hospital Business of Ours*. The book may have been written primarily as a guide and explanation for the hospital trustee, but the *Ours* in the title means literally any one who is connected with hospitals. In addition, the lay person will find much fascination in the book, and a perhaps needed understanding of the fifth largest industry in the U. S., one which actively touches one out of every eight persons in this country yearly.

Statistics on hospitals make this book in many ways a source book of information vital to both professional and lay persons—statistics on such points as numbers and types of hospitals, beds, personnel, purchases, and the birthrate in U. S. hospitals. And for that necessary fact to make a point there are such mathematically astounding figures as 183,000,000 square feet of glass to be kept cleaned, and 208,000 miles of primarily noncorrosive pipes for the distribution of water and steam.

As historical background the development of hospitals is traced from unsanitary and shaky houses of refuge to modern skyscrapers of gleaming chrome and tile, where research and education join with public health in the progressive trend toward complete knowledge of disease and disaster.

This, then, is Section One in Dr. Sloan's book—"Certain Facts and Figures." This is the preparation outlined for the hospital trustee, but useful also to all hospital personnel, and of great interest and readability to the lay person with whom the trustee and the personnel are most concerned.

Section Two of *This Hospital Business of Ours* deals more with the actual duties with which the serious trustee must concern himself. Problems such as the sel-

ection of the administrator and the trustee's relation with him, the trustee's obligation in medical affairs, and public relations with the community are handled in an informative manner by the author, a man who knows familiarly the many ramifications of the hospital field.

In the words of Dr. Sloan, "The ideas presented are intended merely as a gauge with which to appraise your own thoughts and actions as they apply to this vital field of hospital and health service." It would be a wise hospital that has available to its personnel, and to its patients, a copy of *This Hospital Business of Ours.*

JOANNE BRANSON

University Hospital
Ann Arbor, Michigan

BASIC DRUGS: U. S. PUBLIC HEALTH SERVICE HOSPITALS AND CLINICS. Compiled by Bureau of Medical Services, Division of Hospitals, Public Health Service, Federal Security Agency, Washington, D. C. 9⅛" x 5⅞", paper bound, 165 pages. Public Health Service Publication No. 246, 1953. Available from U. S. Government Printing Office, Washington, D. C. Price $0.50.

Basic Drugs exemplifies the principles expounded at the 1952 annual meeting of the ASHP and later illustrated in the January-February (1953) issue of THE BULLETIN in an article by J. S. Mordell and C. K. Himmelsbach. Preparation of the text actually began in 1948, and the time spent by 34 officers of the Public Health Service in its compilation is evident in the quality of the final product. The forward and introduction both clearly state that the book is not the final authority in drug selection, but rather a point of departure for better drug therapy.

The form of presentation followed is the same as that used in many other formularies—according to therapeutic use. Medications are listed under 27 different categories, ranging from allergic agents to vitamins. A complete index serves as a cross reference and also aids in quick location of a specific drug. As its name implies, *Basic Drugs* contains monographs of the drugs considered to be basic armamentarium for any station within the Service. Therapeutic simplicity and reasonable control over inventories are affected without denying the privilege of stocking particular "non-basic" drugs at the request of medical or dental officers upon written approval of the station Pharmacy Committee. From the basic drug list each station can readily choose the items to be regularly stocked in its Pharmacy.

A typical chapter contains a brief discussion of the general application of the drugs included, a classification of these drugs according to derivation or form, and a separate monograph for each drug, listed alphabetically. The individual drug monographs list the physical properties, usual dose, indications and uses, and dosage forms. In all cases where possible, U.S.P, N.F., N.N.R., and A.D.R. names of drugs are used. Trade names are included only in cases where the drug is available from a single manufacturer and is well known by that name.

Also included in the paper-bound, manual-type drug list is an appendix which gives suggested vehicles, some common prescription incompatabilities, a thorough list of equivalents, common Latin abbreviations, general information pertaining to narcotic prescriptions and records, and a suggested drug list for the physician's bag.

An outstanding feature of this book is that it exhibits a thorough representation of the up-to-date armamentarium, making it a very flexible basic drug list even though it is restricted as to duplications and questionable variations of combinations of drugs. Individual monographs contain adequate information with emphasis upon pharmacologic and therapeutic action.

This text is a welcome addition to the list of better formularies in use throughout the nation. Excellent arrangement, easy readability and brief and concise drug prescriptions make it a useful and instructive reference for physician, dentist, nurse and pharmacist alike. The sections on systemic anti-infectives and dermatologic agents are of particular note. It is hoped that adoption of this drug list by the large group of pharmacies and clinics representing the Public Health Service may lead to a widespread simplification of medical armamentaria.

ALBERT W. KOSSLER AND W. GLADHART

The Johns Hopkins Hospital
Baltimore, Md.

PHARMACEUTICAL JURISPRUDENCE, 1952. By Sol A. Herzog. Lithoprint. Available from Columbia University Bookstore, 2960 Broadway, New York 27, N. Y. 8½" x 11", 214 pages. Copyright by Sol A. Herzog. Price $6.00

The author has observed two self-imposed limitations in his discussions of the federal, state, and municipal laws, administrative regulations and rulings, and common law precepts by which pharmaceutical practice is regulated and controlled. The first, "Delineation of basic and fundamental principles only," is necessary in order to limit the volume to a reasonable size. The second, "primarily emphasis upon the law of the State of New York," is understandable when one considers that the primary purpose of the author obviously is to furnish a suitable text and reference for New York students and practitioners. Nevertheless, even non-residents of New York will find this book to be of considerable usefulness when they attempt an organized study of pharmaceutical jurisprudence.

The opening chapter, entitled "Preliminary Discussion of Government Organization and Procedure," furnishes an excellent introduction to the study of the laws of the profession, equally applicable anywhere within the United States. The author then discusses the pertinent law and cites examples of decisions relating to the various phases of pharmaceutical practice under such headings as "Poisons," "Barbiturates, Hypnotic and Somnifacient Drugs," "Narcotics," "New Drugs," "Adulteration and Misbranding," and "Common Law Liability of the Pharmacist" among others.

The outstater wishes that a somewhat more clear-cut separation between federal requirements and New York State requirements might have been made when these topics are considered; however, careful reading provides the desired information and at the same time familiarizes the non-New Yorker with the type of control and regulation prevalent in at least one state in addition to his own.

Among other things, one finds in the Appendix the Code of Ethics of the American Pharmaceutical Association. This is especially convenient for the student when the book is being used as a supplementary text.

LEE WORRELL

University of Michigan
Ann Arbor, Michigan

TEXTBOOK OF PHARMACOLOGY FOR NURSES, 4th Edition, 1953. Edited by Margene O. Faddis, R.N. M.A. Professor of Medical Nursing, Frances Payne Bolton School of Nursing, Western Reserve University and Joseph M. Hayman, Jr., B.A. M.D., Dean, Tufts College Medical School, formerly Professor of Medicine, School of Medicine, Western Reserve University. Published by J. B. Lippincott Company, Philadelphia. 520 pages. Cloth bound. Price $4.50.

In accordance with the newer trends of nursing education it is not too surprising to find a pharmacology text which attempts to follow the correlation method. Such a text is timely and the authors are to be congratulated in attempting to arrange such a text to integrate pharmacology with surgical and medical nursing. In accordance with her stated objective in the preface to this Fourth Edition, Margene O. Faddis has succeeded remarkably well in her intent to emphasize the application of knowledge rather than the mere accumulation of facts.

She has done well laying good basic ground work in her introductory chapters dealing with Solutions, Dosages and Administration, defying the modern trend of belittling the necessity of mathematical accuracy on the part of the nurse in the administration of medicine. The end of each chapter contains special points for nurses and a study outline designed to alert the nurse to medications and methods of procedure in her own hospital. The last two chapters deal with the social aspects of medication and the role the nurse plays in her community and those to whom she ministers.

In the correlation chart which accompanies the text the authors have assigned nursing aspects to units and indicated what systems are to be taught in each unit, in such a manner that all aspects in the care of specific diseases and conditions be studied by the student at the same time. There is one danger that must be guarded against and it is evident in this instance in bringing pharmacological facts down to specific facts—of losing the general overall picture of drug therapy. Aspirin is used for wide and varied types of conditions; yet, the information given to this very important present day medicament is meager.

Regardless of the preceding criticism the book merits attention and to those instructors faced with the problem of realigning their previous methods of teaching, it can be safely used as guide for correlating subjects in their own institutions. Each hospital will have its own system of approaching correlation and the text has left ample room for individual adaptation yet loses none of the basic principles of modern pharmacology and therapeutics.

SISTER M. BLANCHE, O.S.F.

Sacred Heart Sanitarium
Milwaukee, Wisconsin

UNIVERSITY OF CALIFORNIA HOSPITAL FORMULARY. Second edition. Completely revised. 1952. 6¾" x 4", 318 pages. Published by University of California Press, Berkeley, Calif., and Cambridge University Press, London, England. Price $3.75.

This second edition of the *University of California Formulary* is completely revised, the last edition having been published in 1941. It has certain unusual features which are worthy of comment since the reviewer has not noted them in other formularies. The Hospital Pharmacy Committee of the University's Medical Center should be complimented on preparation of a compendium of useful information not only to the medical student and medical practitioner, but to the pharmacy, dental and nursing students and practitioners. Under the capable chairmanship of Troy C. Daniels, dean of the pharmacy school, and, among others, Donald Brodie and Jerome Yalon representing pharmacy on the Committee, a meritorious job has been accomplished.

There is ample discussion of prescription writing, including illustrations of prescriptions on the Center's prescription blank. Along with other general information including narcotic and barbiturate regulations, this Formulary contains a detailed section on "Buffered and Isotonic Solutions" and their applications for ophthalmic and intranasal medications. The seventeen pages of this chapter would be good reading for any pharmacist.

An unusual feature of this Formulary is the "Therapeutic Index" which contains listings by pharmacologic and therapeutic classification of all drugs normally prescribed in the Medical Center.

Each classification has a breakdown of the basic drugs followed by a further listing of "Available Combinations," which in the case of "Antipruritics," for example, occupies over twice as much space as the listing of basic drugs. It is the reviewer's opinion that the titles for the various sections of the "Therapeutic Index" could have been listed in bold face type for easier identification (to enable a more rapid search for a drug).

For some reason the Pediatric and Dental Therapeutic Index sections are segregated from the general "Therapeutic Index" and appear following the "Drug List." In the latter two sections, the reviewer notes the general presentment of the usual formulary that has drugs listed according to therapeutic classification, where there is not only the name of the drug given, but also some basic information about the drug. The therapeutic classifications in the main "Therapeutic Index" provide only the name of drug and combinations of drugs with the information previously stated, providing a minor incongruity in the manner of presentation which, however, is not harmful.

The "Drug List" chapter provides an alphabetical listing of all drugs in the Formulary. The descriptions include official status, synonyms, empirical formulas, molecular weights, important physical properties, uses, contraindications to use, side effects, doses, and cautions. The dosage forms and sizes available in the pharmacy are not found in the "Drug List."

There is also a section on "Antiparasitic Agents and Their Administration" which to the reviewer, seems to be as incongruous by being segregated, as do the isolated sections for the Pediatric and Dental Therapeutic Index. All three of these sections are nicely detailed for physician, pharmacist, dentist, or nurse to review.

The back of the Formulary is devoted to general information pertaining to laboratory, x-ray and other procedures and normal values, plus a section on treatment of acute poisonings, and a general index. The total formulary is valuable and represents much work and a job well done. The complexity of the various sections and therapeutics indexes, however, lends further fuel to the reviewer's feelings that the best formulary is one which has a perdominant alphabetical listing of drugs, and which has a therapeutic and pharmacologic classification which refers the reader to the alphabetical listing of the preparation.

HERBERT L. FLACK

Jefferson Medical College Hospital
Philadelphia, Pa.

CURRENT LITERATURE

Edited by SISTER MARY ETHELDREDA, *St. Mary's Hospital, Brooklyn, N.Y.*

American Professional Pharmacist

MAY 1953—"Meeting Pharmacy Needs in a Mental Hospital," by Lester W. Burleson, pharmacist, Connecticut State Hospital. Describes the problems involved in providing adequate pharmacy service in a mental institution.

Page 394

JUNE, 1953—"Supervision in the Undergraduate Teaching Program," by Edward Superstine. Discusses how the teaching program for pharmacy students is integrated into the hospital pharmacy department at University Hospital, Ann Arbor, Michigan. *page 486*

Drug and Cosmetic Industry

MAY, 1953—"Silicones in Medicine and Pharmacy," by Milton A. Lesser. A well documented review of the use of silicones along with specific references to uses and preparations.

page 616

JUNE, 1953—"Up to Date on Vitamin A (Part 1)" by Milton A. Lesser. Discusses the growing importance of synthetic vitamin A for therapeutic use and fortification of foods and beverages. Includes bibliography.

Hospitals

JUNE, 1953—Part II, Administrators Guide Issue. "Management Guide—Pharmacy" by John J. Zugich. Presents Administrative check lists on the following topics: Organization, Functions, Physical Facilities, Personnel, Records and Reports, Charges and Selected Bibliography. Intended to serve as a yardstick to measure the efficiency and performance of the department.

page 381

Hospital Management

JUNE, 1953—"Pharmacist: Be a Consultant" by Paul G. Bjerke. Describes how the pharmacist may attempt to best serve the professional staff and the patients as well as other personnel.

page 74

JULY, 1953—"Barnes Pharmacists Play Key Role in Professional Service to Patients," by Florence Mueller. In this issue dedicated to Barnes Hospital, St. Louis, Mo., the author describes the service and activities of the extensive pharmacy department. *page 90*

Hospital Progress

JUNE, 1953—"Pharmacy Educational Requirements," by Sister Mary Berenice. Describes the need for more specialized education for the hospital pharmacy field.

page 88

J. Am. Pharm. Assoc., Pract. Pharm. Ed.

MAY, 1953—"A Symposium: New Aids and Procedures for Compounding Dermatologic Products." A series of papers covering the development of better and more convenient compounding procedures and formulas for dermatological preparations. *page 283*

Modern Hospital

JUNE, 1953—"Succinylcholine" by Stephen Thesleff, M.D. Describes the chemistry, pharmacology and clinical use of this short-acting skeletal muscle relaxant.

page 108

Southern Hospitals

JUNE, 1953—"Should the Hospital Pharmacist be Subjected to Centralized Purchasing," by Grover Bowles. The first of a series of papers on this question as discussed at the Southeastern Hospital Conference. *page 74*

JULY, 1953—Samuel E. Redfern, purchasing agent, Touro Infirmary, New Orleans, La. presents the second portion of this discussion.

page 60

A.S.H.P. AFFILIATES

Northeastern Society

The Northeastern New York Society of Hospital Pharmacists met at the Veterans Administration Hospital in Albany on June 17. "Increase Your Pharmacy Library" was the subject for discussion. Mr. Frederick F. Stevens, a past president of the New York State Pharmaceutical Association, was among those present.

Greater New York Chapter

Members of the Greater New York Chapter of the ASHP met at St. Catherine's Hospital in Brooklyn for the regular May meeting. Featured on the program was an "Exchange of Ideas Clinic" during which time members presented ideas of special interest to the group. The use of Celon Seals was demonstrated; a method to protect labels on eye solutions was presented; and a rapid method for calculating requisitions costs was demonstrated.

Election of new officers was held with Sister Mary Etheldreda, chief pharmacist at St. Mary's Hospital in Brooklyn, selected as the new president of the Greater New York Chapter.

Tennessee Society

The Tennessee Society of Hospital Pharmacists convened for its first state-wide meeting in Nashville, May 8 and 9. The meeting was held in conjunction with the Tennessee Hospital Association's annual convention. Thirty-six registrants, representing hospital pharmacists and territorial medical service representatives, were present. President William Upchurch of the Methodist Hospital in Memphis welcomed the group and gave a brief historical background of the Tennessee Society.

With Mr. W. Howard Hassler of the University of Tennessee in charge of the program, the following papers were presented.

"The Value of a Strong Society," by R. L. Crowe, Dean of the School of Pharmacy University of Tennessee, Memphis.

"Manufacture of Parenterals," by Sister Mary Franciscana, St. Joseph Hospital, Memphis.

"New Trends in Emulsions," by W. Howard Hassler, School of Pharmacy, University of Tennessee.

"The Professional Responsibilities of the Pharmacist," by Ralph Stone, Vanderbilt Hospital, Nashville.

During the business session, it was voted to affiliate with the Southeastern Society of Hospital Pharmacists.

Northern California Society

"Electrolytes and Electrolyte Balance" was the subject presented by Dr. James Hopper, Jr., Assistant Professor of Medicine and Director of Clinical Laboratories at the University of California Hospital, at the May 12 meeting of the Northern California Society. Carrying out the Seminar Program, Mr. Al Seubert, pharmacist at the University of California Hospital, discussed the preparation of electrolytic solutions.

New members introduced at the meeting included Mr. Kazuo Takahashi of St. Luke's Hospital in San Francisco and Mr. Herman H. Schierenberg from the Butte County Hospital in Oroville, Calif.

Arizona Society

The Arizona Society is carrying out a study of the Proposed Point Rating Plan as a special project. The Committee appointed to make the study includes Dr. A. L. Picchioni, chairman; Dr. Willis R. Brewer; and Mr. Elias Schlossberg.

Oklahoma Society

Members of the Oklahoma Society attending the May 20 meeting heard Mr. Porter Stovall, chief pharmacist at Valley View Hospital in Ada, Okla., describe hospital pharmacy operation in a 120-bed institution. He discussed cooperation with the local retail pharmacists and the success of the pharmacy department in this small institution. The meeting was held at St. Anthony Hospital in Oklahoma City.

Southern California Society

The Southern California Society of Hospital Pharmacists met at the Queen of Angels Hospital in Los Angeles on May 13. During the business session Mr. Charles Hagan reported on the Pharmacy Section of the Western Hospital Association which met recently in Salt Lake City. Other business included a report on the Advisory Board by Sister Mary Junilla, plans for the 1953 Institute and appointment of a delegate to the ASHP annual meeting.

The program included a demonstration of the Firm Press Hand Crimper by Mr. William Strobeck, resident in the VA program. Miss Florence Martin briefly summarized the results of a pricing study on injectibles made by the pharmacists of 17 voluntary hospitals in the local area.

Illinois Chapter

The Illinois Chapter of the ASHP has submitted an annual report covering activities during the past year. Of particular interest are the subjects covered at the various meetings. These include: The Antibiotics and Terramycin; The Needs for Organization; The Chloromycetin Situation; Progress through Research;

and Recent Research in Pediatrics.

New officers of the Illinois Chapter include President Charles Lev, Michael Reese Hospital, Chicago; Vice-President Phil Ritzlin, Hines Veterans Hospital, Chicago; and Secretary-Treasurer Louis Gdalman, St. Luke's Hospital, Chicago.

Utah Society

The Executive Committee of the ASHP has approved affiliation of the Utah Society of Hospital Pharmacists. Officers of this new group are President George F. Flashman, Holy Cross Hospital, Salt Lake City; Vice-President Mrs. Nellie Vanderlinden, St. Mark's Hospital, Salt Lake City; Secretary D. Wallace Thorup, Salt Lake General Hospital, Salt Lake City; and Treasurer Sister M. Rebecca Schmidt, St. Benedict's Hospital, Ogden.

Midwest Sister Pharmacists

Fourteen members of the Midwest Association of Sister Pharmacists met in Peoria, Ill. for the April 23 meeting. Highlighting the program was a talk by Rev. Father John Weishar, Director of Hospitals for the Peoria Diocese. He summarized the five reasons for the existence of Catholic hospitals. Sister Lucy Marie of Kankakee gave a report on new drugs covering Mephyton and Nalline.

During the business session reports were heard from the Narcotic Committee and the Nominating Committee.

Texas Society

The Texas Society of Hospital Pharmacists has been divided into five sections for the purpose of arranging local meetings and carrying out membership activities. These include San Antonio, Houston, Dallas, Austin and Fort Worth.

The Dallas Committee will be in charge of the all-day program which is being held on July 28 in conjunction with the Texas Pharmaceutical Association. Speakers will include Dr. B. B. Brown, president of the State Board of Pharmacy and W. U. Paul, Administrator of Southwestern General Hospital, El Paso.

Florida Society

Mrs. Anna D. Thiel, chief pharmacist at Jackson Memorial Hospital in Miami, has been elected president of the Florida Society of Hospital Pharmacists. Other new officers are Vice-President Lewis Bevis, Tallahassee Memorial Hospital, Tallahasse, and Secretary-Treasurer Mary Hester, St. Joseph's Hospital, Tampa.

Alabama Society

The Alabama Society held a breakfast meeting in conjunction with the Southeastern Hospital Conference in New Orleans on April 9. This was a business session during which time a change in the Constitution and By-Laws was voted on and plans were made to hold the next meeting in Langdale, Ala.

Massachusetts Society

The Massachusetts Society of Hospital Pharmacists met at Lynn Hospital in Lynn, Mass. for the May 20 meeting. Plans were discussed for naming a delegate to the ASHP annual meeting. Following the business session, Mr. Dan Traner, administrator of the Lynn Hospital, gave a talk on "Views of an Administrator in Relationship to the Hospital Pharmacy Department."

Indiana Chapter

The Indiana Chapter of the ASHP met at the Claypool Hotel in Indianapolis on June 17. Officers and members of the executive committee of the Indiana Pharmaceutical Association were present since the meeting was held in conjunction with the annual state convention. The guest speaker was Mr. J. W. Lansdowne, assistant manager of the Professional Services Department, Eli Lilly and Company.

During the business session plans were outlined for including a page in each issue of the *Indiana Pharmacist*.

Miami Society

The Miami Society of Hospital Pharmacists recently gave a dinner for the intern and resident staffs of the Miami hospitals. This offered an unusual opportunity to get acquainted and promote better professional relations.

New Associate Members of the International Pharmaceutical Federation

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Jensen, Raymond L., Birmingham, Mich.
Job, Betty K., Cleveland 4, Ohio
Johnson, Byron K., Manitoba, Canada
Jones, Hurd M. Jr., Houston 4, Tex.
Kelly, Lorenzo E. Sr., Houston, Tex.
McClure, John W., Dallas, Tex.
Mariano, Constantine N., Boston, Mass.
Ott, David E., Mansfield, Ohio
Redman, Kenneth, College Station, S. D.

as the president sees it

GROVER C. BOWLES
Strong Memorial Hospital, Rochester, N. Y.

As I attempt to decipher my notes and file away the information which I acquired by participating in two institutes in less than a month, my thoughts turn to the impact which these unusual refresher courses have had on hospital pharmacy practice as we know it today. As you probably know, since the first Institute was held on the University of Michigan campus in June 1946, fourteen institutes on hospital pharmacy have been held. Based on experience gained by attending the majority of these institutes, I would say that this year's Fifth Annual Institute for Hospital Pharmacists conducted by the Catholic Hospital Association and the Ninth Institute on Hospital Pharmacy conducted by the American Hospital Association were "tops." Both institutes were again jointly sponsored by the SOCIETY and the A.Ph.A. in cooperation with the hospital organizations, as have been the previous twelve.

Both institute programs covered a wide variety of technical and professional subjects and featured a number of outstanding educators, physicians, hospital administrators, pharmacists and other specialists in the hospital and medical care field. However, it appears to me that if we critically appraise the results of this type of program much depends on the individual participation during the discussion periods and the conversations in the corridors and over the second cup of coffee at meal time—for it is in this manner that a multitude of problems are discussed. The spontaneity and informality which has always prevailed at our institutes indicate that they will continue to prosper.

Significant in the success of any institute or convention is the priceless contribution made by the local group. This was particularly true in California this year. With the Loyola Campus some twenty miles from downtown Los Angeles, the local chapter organized a car pool which provided transportation not only for the "visiting firemen" arriving on Sunday, but functioned throughout the entire week and until the last institutor was on his way home on the following Saturday. Meeting scores of planes and trains and transporting us to and from the Campus called for real coordination. The Sunday afternoon Reception and the "Chuck Wagon Dinner" Monday evening were sponsored by the local chapter and did much to get the week off to a cordial beginning. Impressive, also, was the close cooperation between the Northern California and the Southern California Chapters of the SOCIETY. This is the kind of cooperation which coninues to make the ASHP unique among organizations of its type.

Like most hospital pharmacists, I am always interested in what other people are doing and took this opportunity to visit the pharmacies in several Los Angeles hospitals including St. John's, Queen of Angels, Los Angeles County General and the Veterans Administration Center. I also enjoyed a hurried tour of the University of Southern California Campus and a brief visit to one of the manufacturing laboratories at the College of Pharmacy. Another highlight was the invitation to attend a dinner meeting of the Greater Los Angeles A.Ph.A. Branch at which the graduating seniors from U.S.C. College of Pharmacy were the honored guests.

Advance registration for our annual meeting looks good. Correspondence from Paul Bjerke, program chairman and D. Wallace Thorup, secretary of the newly formed Utah Society of Hospital Pharmacists indicates a very outstanding meeting is in store for us in Salt Lake City.

Policy Committee Meets

The Policy Committee of the Division of Hospital Pharmacy met in Washington on July 11 and came to conclusions on a number of highly important pending matters of special interest to hospital pharmacists and the practice of pharmacy in hospitals.

Following a review of the routine activities of the Division, which were reported on by Don Francke and Gloria Niemeyer, director and assistant director, respectively, of this group, the Committee discussed hospital pharmacy internship programs and policies; hospital pharmacy institutes; surveys; drug regulations; and the participation of hospital pharmacists in civil defense, military services, and public relation activities.

Considerable time was spent on the proposed hospital pharmacy internship standards which had been submitted to the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS by its Committee on Minimum Standards and referred to the Policy Committee for review. The Policy Committee came to the conclusion that some misunderstandings had arisen as a result of varying concepts of training programs to qualify pharmacists for the practice of pharmacy in hospitals.

The Committee concluded that a realistic definition of terms is essential for an understanding of the training program on the part of administrators, hospital pharmacists and prospective hospital pharmacists.

It was deemed important to distinguish between programs of postgraduate study arranged for hospital pharmacists who are interested in obtaining graduate degrees, and programs of on-the-job training to qualify the graduate and Policy Committee at the annual meeting of the SOCIETY in Salt Lake City.

As a result of the discussions, clear cut definitions of the terms "hospital pharmacist," "internship," and "graduate instruction" were arrived at and will become a part of the report of the Policy Committee at the annual meeting of the SOCIETY in Salt Lake City.

The Committee hopes that these definitions will bring about the necessary clarification to provide acceptance of the hospital pharmacy training program by administrators, hospital pharmacists and educators, and will eliminate controversy and misunderstanding.

The total plan for carrying the annual institutes on hospital pharmacy was discussed with emphasis on the need for providing this type of "refresher courses" in geographical areas where most needed. Consideration was given to the possibility of holding additioinal institutes annually if this seems desirable. It was agreed by the representatives of each of the sponsoring organizations that Connecticut would be considered as the site for the 1954 institute providing facilities and a satisfactory date are available.

Mr. Vernon Trygstad, representing the ASHP Committee on Narcotic Regulations, was present to discuss the proposed changes in narcotic regulations. The Committee has made a study over a period of several years and has made considerable progress in securing interpretations of the regulations affecting hospital pharmacy practice. Since it would be necessary to have the support of all organizations when proposing any amendment to the present law, the proposal was referred to the Policy Committee of the Division by the ASHP Executive Committee. After considerable discussion, it was decided to take no action concerning the proposed changes in narcotic regulations which would create a new classification at this time. The Committee was commended for the outstanding work which has been done in getting interpretations of the regulations from the Bureau of Narcotics.

Other subjects considered by the Policy Committee included drug regulations on federal and state level, military and other governmental hospital pharmacy, hospital pharmacy in civil defense, and current activities of the Division of Hospital Pharmacy.

Members of the Policy Committee present at this meeting included Grover C. Bowles, W. Arthur Purdum, and Don E. Francke representing the ASHP; Robert P. Fischelis and Glenn L. Jenkins representing the A.Ph.A.; Sister Mary Stephanina of the Catholic Hospital Association; and Robert R. Cadmus of the American Hospital Association. Walter Frazier, another representative of the SOCIETY, was unable to be present. Also in attendance at the meeting was Dr. Charles Letourneau, secretary of the Council on Professional Practice of the A.H.A. Dr. Letourneau was present at the meeting in connection with plans for future institutes which are sponsored jointly by the A.H.A., the A.Ph.A. and the ASHP.

John Zugich Promoted

The University of Michigan Hospital has announced the promotion of John Zugich from administrative assistant to assistant director of the University Hospital. Mr. Zugich has had 14 years association with hospitals having served as an administrative trainee at the U. of M. Hospital, Chief Pharmacist at the Grace-New Haven Hospital in Connecticut, and at Oak Ridge, Tennessee where he helped develop the first hospital and medical facilities there for 100,000 atomic workers.

Mr. Zugich received his Bachelor's degree in pharmacy from the University of Illinois, and his Master's degree from Yale University upon completion of the Yale Graduate Course in Hospital Administration.

A hospital pharmacy internship was completed at the U. of M. Hospital following his graduation from pharmacy school. Mr. Zugich, as well as his wife, is a charter member of the ASHP and has long been active in Society affairs. He served as president of the Society during 1947-48. chairman of the 1948 Institute on Hospital Pharmacy in Princeton, N.Y., and has participated on numerous committees and projects of the ASHP.

Mr. Zugich, who is currently editor of the Hospital Pharmacy Forum in the *American Professional Pharmacist,* has authored more than 25 papers on various phases of hospital work which have appeared in national hospital and pharmaceutical journals.

Internship Announced

Sister Mary Junilla, chief pharmacist at Queen of Angeles Hospital in Los Angeles, has announced an opening for an internship beginning in October. The program includes practical training in the various phases of hospital pharmacy. A woman applicant is preferred.

A.H.A. Issues Administrators Guide

The American Hospital Association has again issued the "Administrators Guide Issue" as Part II of the June number of *Hospitals.* Included in the issue are Statistical Guides; Guide to Hospitals and Association Membership; Guide to American Hospital Association, Other Organizations and Schools; and Management Guides.

Of special interest to hospital pharmacists is the Guide on Pharmacy prepared by John J. Zugich, assistant director, University Hospital, Ann Arbor, Mich. Mr. Zugich is a registered pharmacist and a past president of the Society. The section includes essential information on Organization; Functions; Physical Facilities; Personnel; Records and Reports; Charges; and a Selected Bibliography. As pointed out in the preliminary statement, "The objective of the pharmacy guides is to provide 'yardsticks' and areas of inquiry for measuring the performance and efficiency of this service by both the administrator and the department head." It is further pointed out that "A secondary purpose is to suggest briefly some approaches or alternatives to the department head (or the administrator who may have to deal directly with departmental operations) which will implement good performance or integration of this hospital service."

The Statistical Guides show that of the total of 6,075 hospitals listed 3,245 reported a pharmacy department. The average daily census for 1952 was 1,335,673 compared with 1,292,841 during the previous year. Figures on the income per patient day for 1952 are not given.

The Guide to Hospitals includes a list of hospitals by state along with essential information.

Mrs. Thiel on State Association Board

Mrs. Anna D. Thiel, chief pharmacist at the Jackson Memorial Hospital in Miami and treasurer-elect of the ASHP, has been elected to the Executive Board of the Florida Pharmaceutical Association. She will represent the Southeast Florida Association. This is the first time a hospital pharmacist has been elected to the Board. Mrs. Thiel has played an active role in pharmaceutical organizations, both locally and nationally and she is a charter member of the Society.

Hospital Pharmacist Speaks at Ohio Association

Russell Lovell, chief pharmacist at The City Hospital of Akron and president of the Ohio Society of Hospital Pharmacists, spoke at the recent meeting of the Ohio State Pharmaceutical Association. He discussed hospital pharmacy and the relationship of the hospital pharmacist to other members of the profession. Mr. Lovell also emphasized that hospitals are not in competition with drug stores, pointing out that the hospital pharmacy exists to serve the patient in the hospital.

Malcolm L. Hutton Retires

After almost 40 years of service to The Presbyterian Hospital in Chicago, Malcolm L. Hutton retired on June 1. Long an active member of the ASHP, Mr. Hutton, who became Chief Pharmacist at Presbyterian Hospital in 1941, was honored on the occasion of his retirement by a party given by the Pharmacy Committee of his hospital. His many friends in the ASHP wish Mr. Hutton years of continued happiness.

ASHP Delegation To Europe

With a delegation numbering approximately 20, the American Society of Hospital Pharmacists will be well represented as the Fifteenth General Assembly of the International Pharmaceutical

Federation opens in Paris September 14. Heading the ASHP delegation, one of the largest American groups ever to participate in a European pharmaceutical meeting, will be President Allen V. R. Beck and Secretary Gloria Niemeyer.

Other members of the ASHP attending the Federation meeting in Paris will be Dr. Don E. Francke of Michigan, Miss Ursula Heyer of Wisconsin, Miss Sadie Jacobs of New York with Miss Freda Jacobs, Mr. Cornelius Keyzer of Michigan with Mrs. Keyzer, Mr. Frank Kunkel of Ohio, Miss Oma Dell May of Alabama, Miss Belle Moskowitz of Michigan with Miss Molly Moskowitz, Mrs. Ethel Pierce of Massachusetts, Dr. W. Arthur Purdum of Maryland, Mr. I. Thomas Reamer of North Carolina, Mrs. Anna Richards of New Jersey, Lt. Col. H. Dale Roth of the District of Columbia, Miss Geraldine Stockert of New Jersey, Miss Rhea Thomas of Indiana, and Mr. Norbert Wegemer of Michigan

Papers to be presented by members of the ASHP at the International Pharmaceutical Federation total six. Five of these will be presented before the Section on Hospital Pharmacy while the other will be given before the Section for Pharmaceutical Editors. The titles and authors of the papers to be presented are as follows:

1. "The American Society of Hospital Pharmacists—Its Role in the Advancement of Hospital Pharmacy in the United States" by Gloria Niemeyer.
2. "Studies on the Use of 2,2′ Methylenebis (3, 4,6 trichlorophenol) Hexachlorophene, and 2,2′ Thiobis (4,6 dichlorophenol) Actamer, as Skin Disinfectants" by Allen V. R. Beck.
3. "Minimum Standard for Pharmacies in Hospitals" by W. Arthur Purdum.
4. "Factors in the Selection of Germicides for Hospital Use" by Sister Mary John.
5. "A Point-Rating Plan for the Evaluation of Hospital Pharmacy Service" by M. R. Kneifl.
6. "A Proposal for Selected World-Wide Pharmaceutical Abstracts" by Don E. Francke.

Most of the delegation will leave New York's Idlewild Airport on August 29. Arriving in London the following morning, they will be met at the airport by representatives of the British Pharmaceutical Society and the Guild of Public Pharmacists. During the week beginning August 31 they will participate in the British Pharmaceutical Conference. Leaving London September 6 most of the group will procede to Paris by way of Amsterdam, The Hague, Brussels, Cologne, Bonn, Wiesbaden, Luxembourg, Rheims, and Chateau Thierry, an itinerary arranged by the ASHP Committee on International Hospital Pharmacy Activities.

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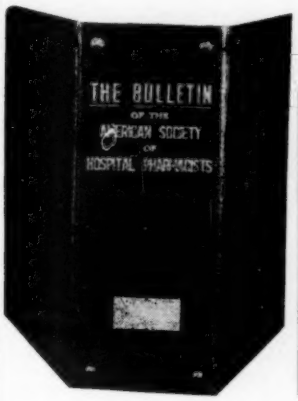

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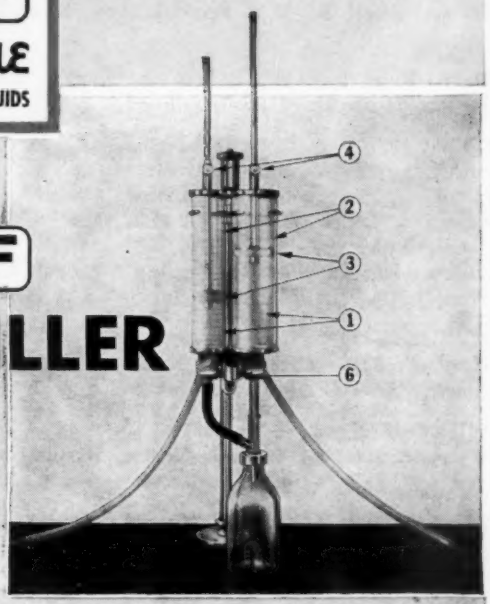

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Membership Dues

New Members of the SOCIETY as well as those who are delinquent will want to note the following excerpt taken from the ASHP By-Laws, Chapter V, Article 4:

"The period of membership shall coincide with the period of membership in the American Pharmaceutical Association. Dues are payable and due on the anniversary date of this period. Membership in the SOCIETY and the obligation for dues will continue from year to year unless a member's resignation, signed by the member, is received by the Secretary prior to the end of the year for which dues have been paid.

Any member in arrears for dues for one year shall cease to be a member of the SOCIETY, provided that at least two weeks before his name is removed from the rolls, the Secretary shall send him a written notice of his delinquency together with a copy of the By-Laws pertaining to the subject. Such a person may be reinstated as a member provided his arrears have been paid and payment of current membership dues is made."

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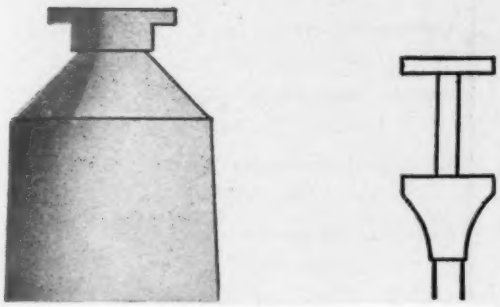

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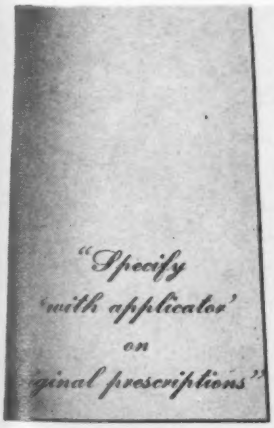

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